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Dividing time – an absolute chronological study of material culture from Early Iron Age urnfields in Denmark

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Supplementary Information S1

Material record

S1 Table. Metalwork types in English and Danish.

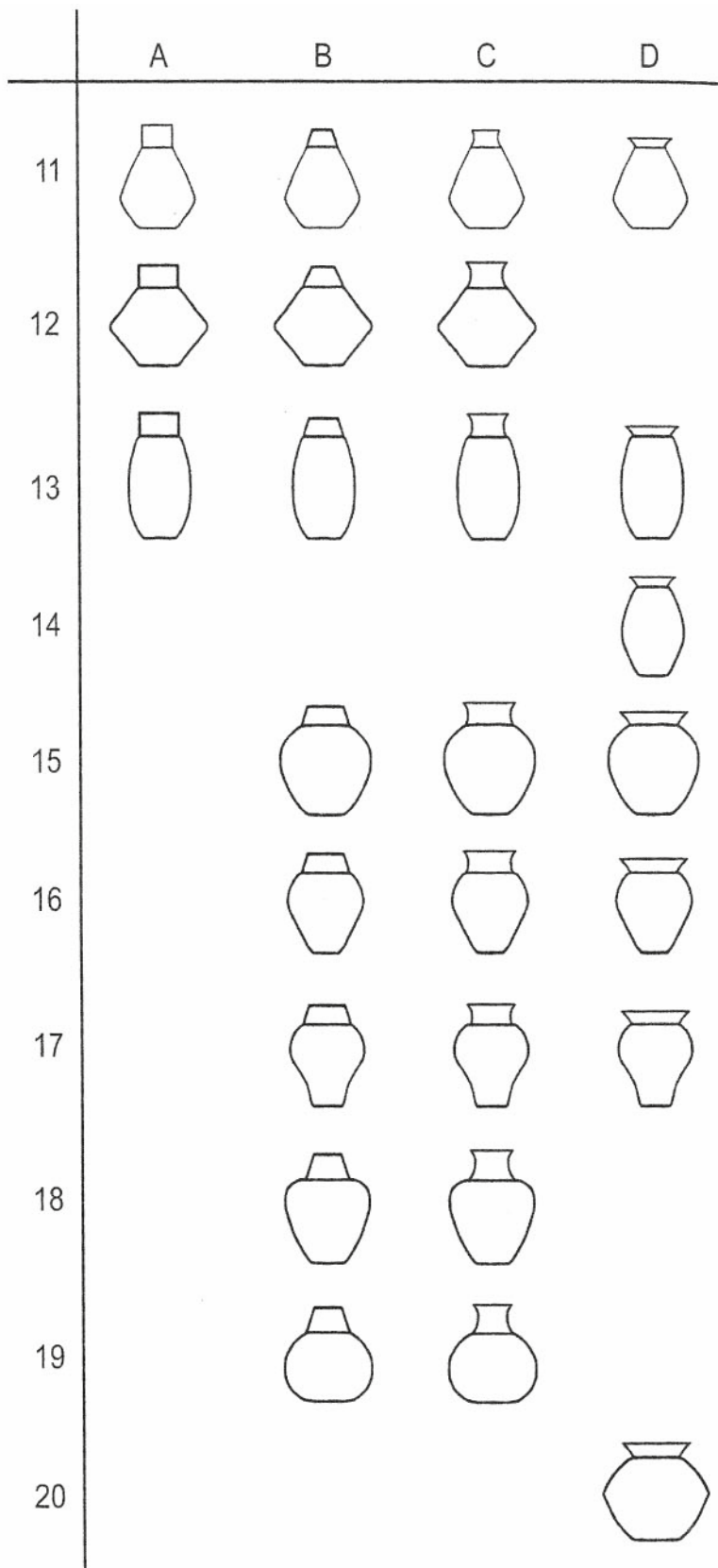
English term	Danish term
Pin with coiled head	Krølhovednål
Pin with circular head	Ringhovednål
Pin with bomb-shaped head	Bombehovednål
Holstein pin	Holstensk nål
Pin with grooved head	Rillehovednål
Winged head pin	Vingehovednål
Pin with rod-shaped head	Stavhovednål
Iron ring with eyelet	Øskenring
Tongue-shaped belt clasp	Tungeformet bæltehage
Triangular belt clasp	Trekantet bæltehage
Narrow belt clasp	Smal bæltehage
Iron ring with attached shank	Jernring med tvinge

SI Table. Pottery typology, descriptions of vessel neck shapes, after Jensen (1).

Code	Shape of vessel neck
A	Cylindrical
B	Conical
C	Concave
D	Rim, but no neck
E	Conical rim, but no neck

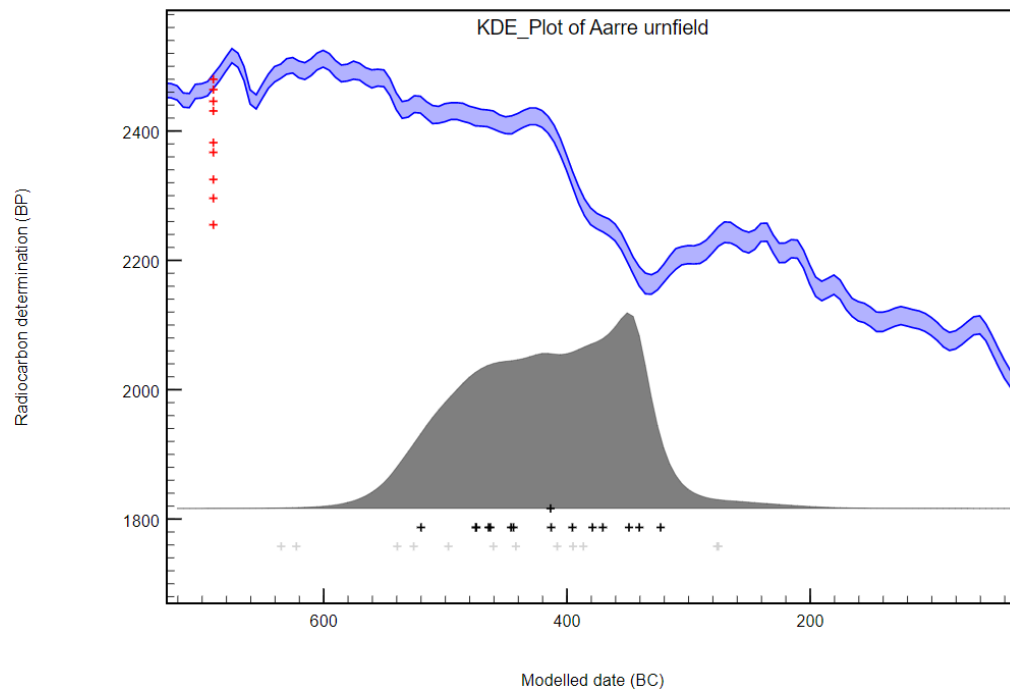
S1 Table. Pottery typology, descriptions of vessel body shapes, after Jensen (1).

Code	Shape of vessel body
11	Double conical shape, widest point in the lower part of the vessel
12	Double conical shape, widest point in the central part of the vessel
13	Evenly curved vessel
14	Domed, widest point in the central part of the vessel
15	Domed, widest point in the upper part of the vessel
16	Domed lower body, straight upper body, widest point in the upper part of the vessel
17	Domed lower body, conical upper body, widest point in the upper part of the vessel
18	Domed lower body, widest point in the absolute upper part of the vessel
19	Slightly domed – lenticular shape
20	Domed, widest point in the central part of the body – almost round corpus shape

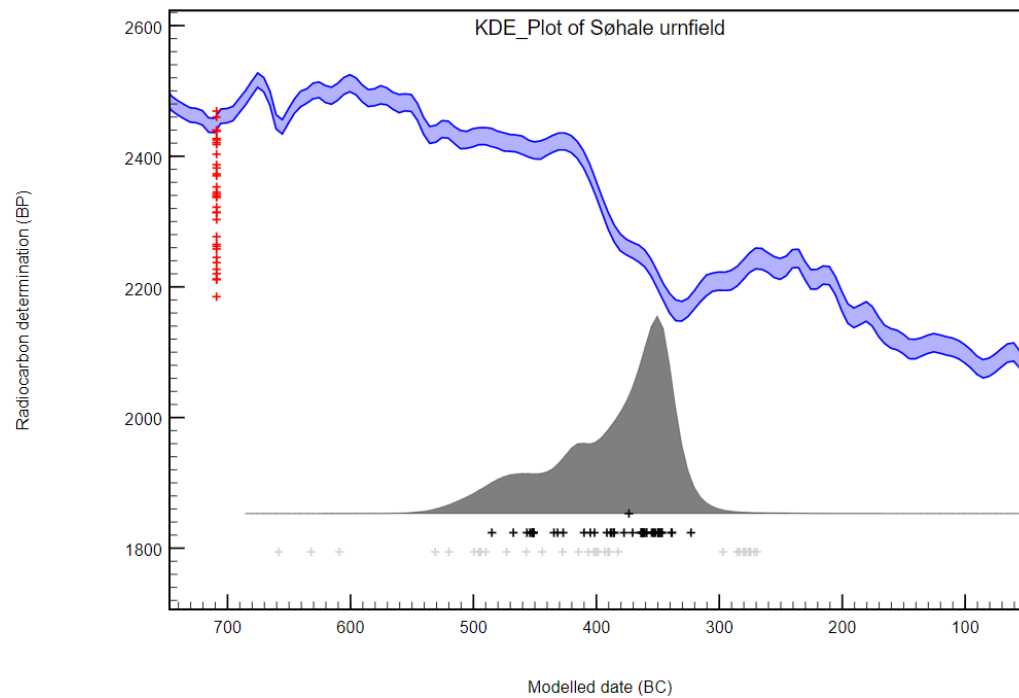


S1 Fig. Pottery typology after Jensen (1).

Modelling burial activity

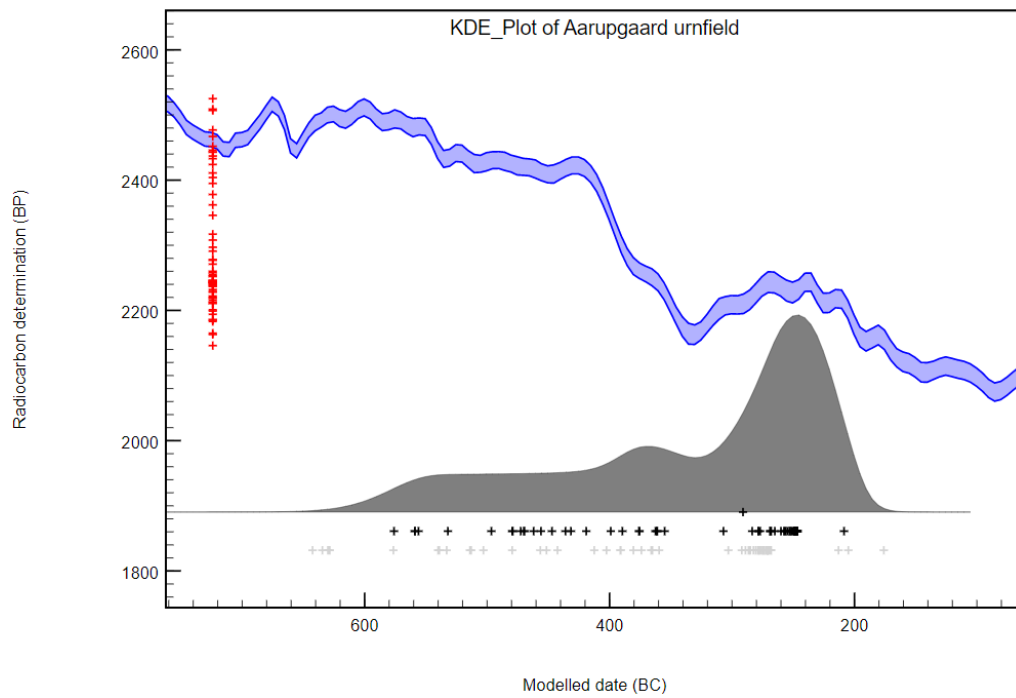


S1 Fig. Kernel density plot of Aarre urnfield. Estimated by the preferred urnfield model B.



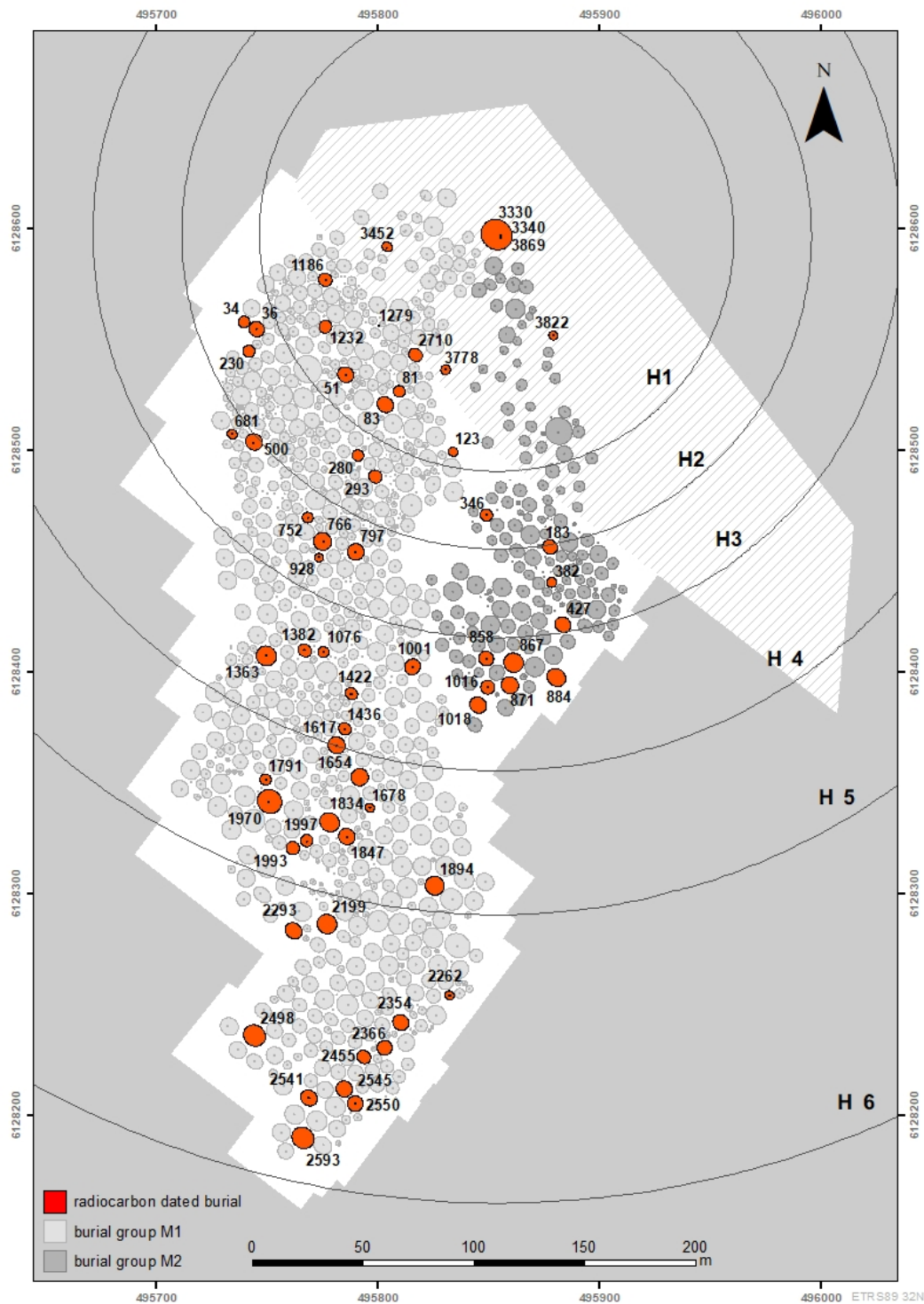
S1 Fig. Kernel density plot of Søhale urnfield. Estimated by the preferred urnfield model B.

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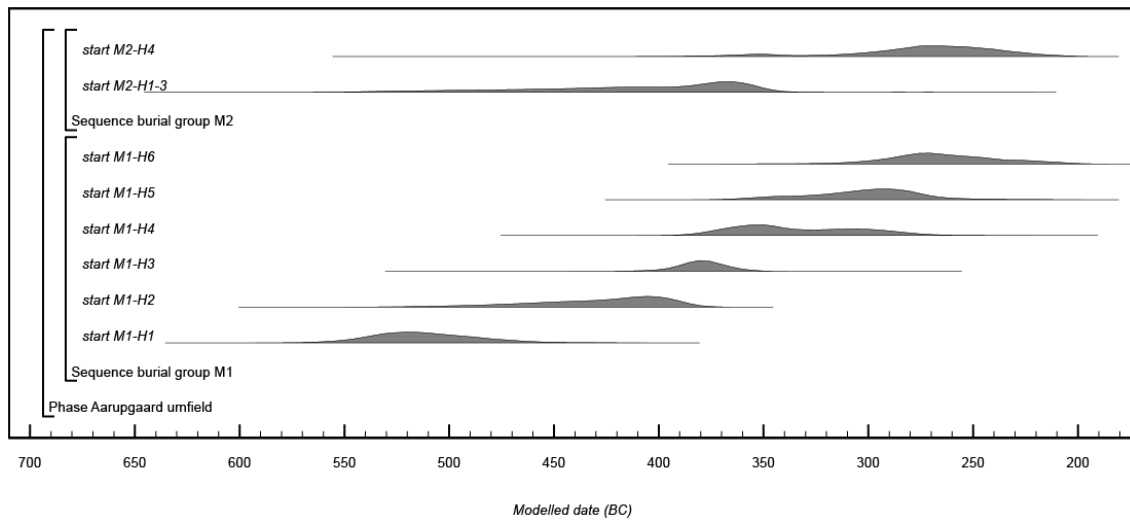


S1 Fig. Kernel density plot of Aarupgaard urnfield. Estimated by the preferred urnfield model B.

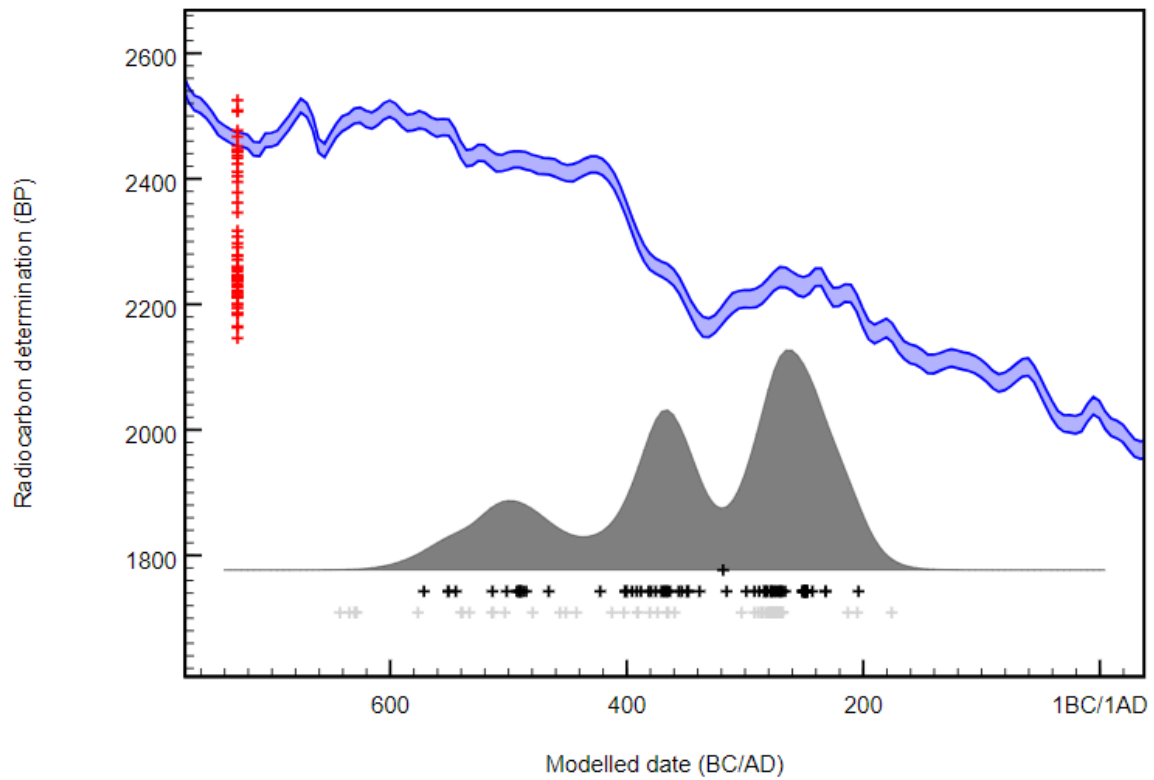
Spatio-temporal development



S1 Fig. Aarupgaard urnfield divided into arbitrary horizontal groups (H1-H6) of c.200 burials. ¹⁴C dated burials are marked in red, burial group M1 in light grey and burial group M2 in dark grey.

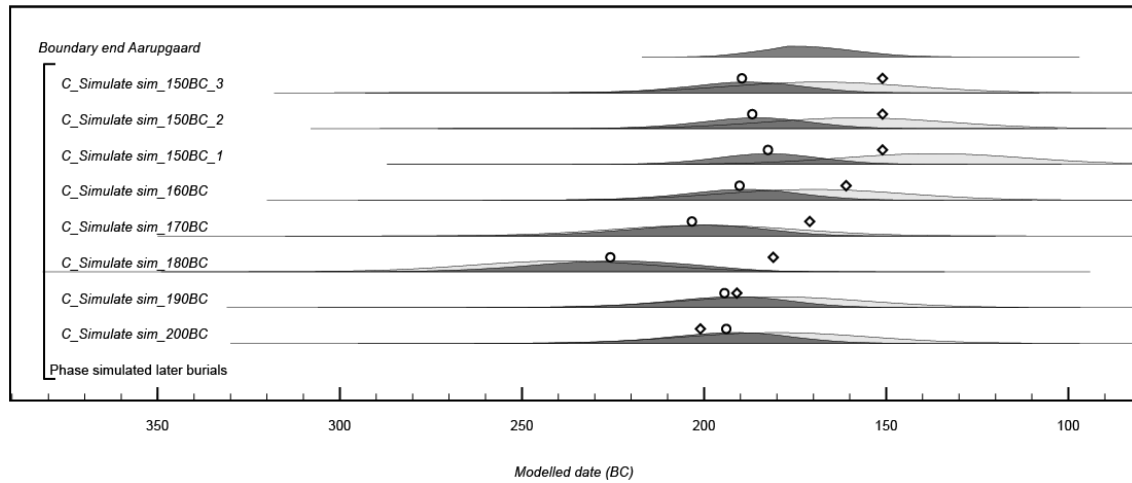


S1 Fig. Posterior estimated starts of arbitrary horizontal groups at Aarupgaard urnfield. Excluding the initial 'founding phase' with burials U3330, U3341 and U3869.



S1 Fig. Kernel density estimate of alternative horizontal model of Aarupgaard urnfield.

Sensitivity testing



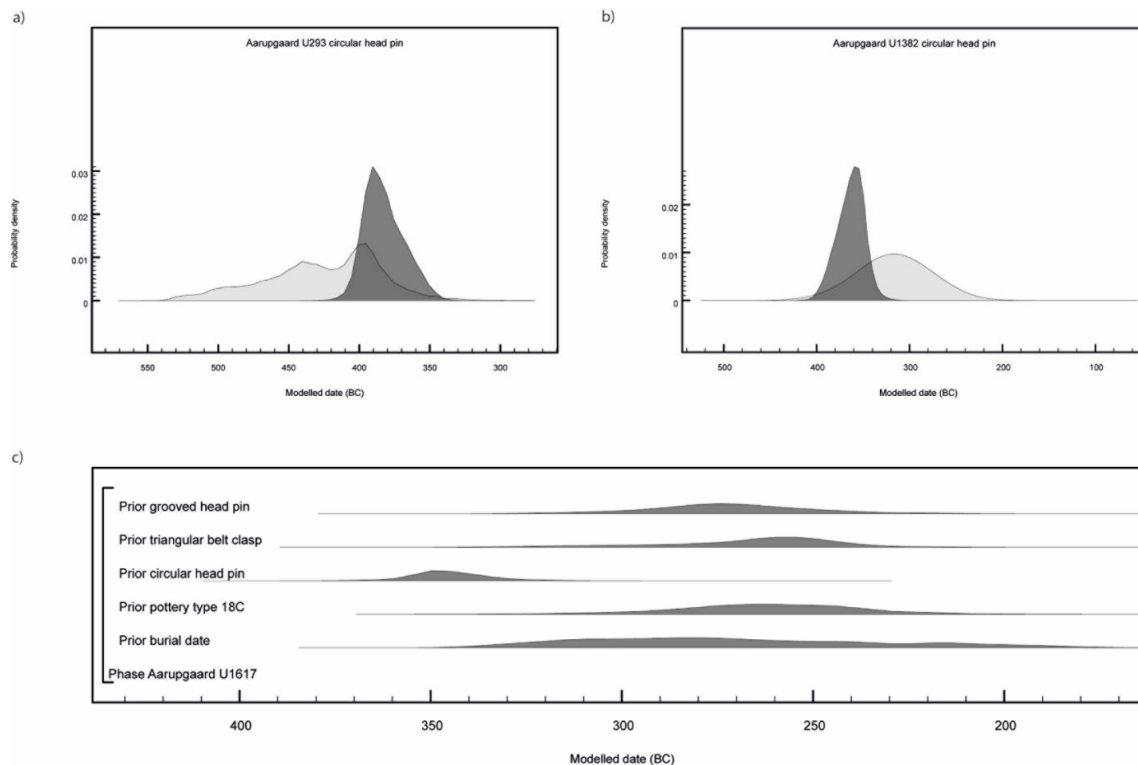
S1 Fig. Adding simulated later burial dates to preferred urnfield model B. Diamonds are medians of true calendar dates, circles are medians of posterior estimates.

Modelling artefact currencies

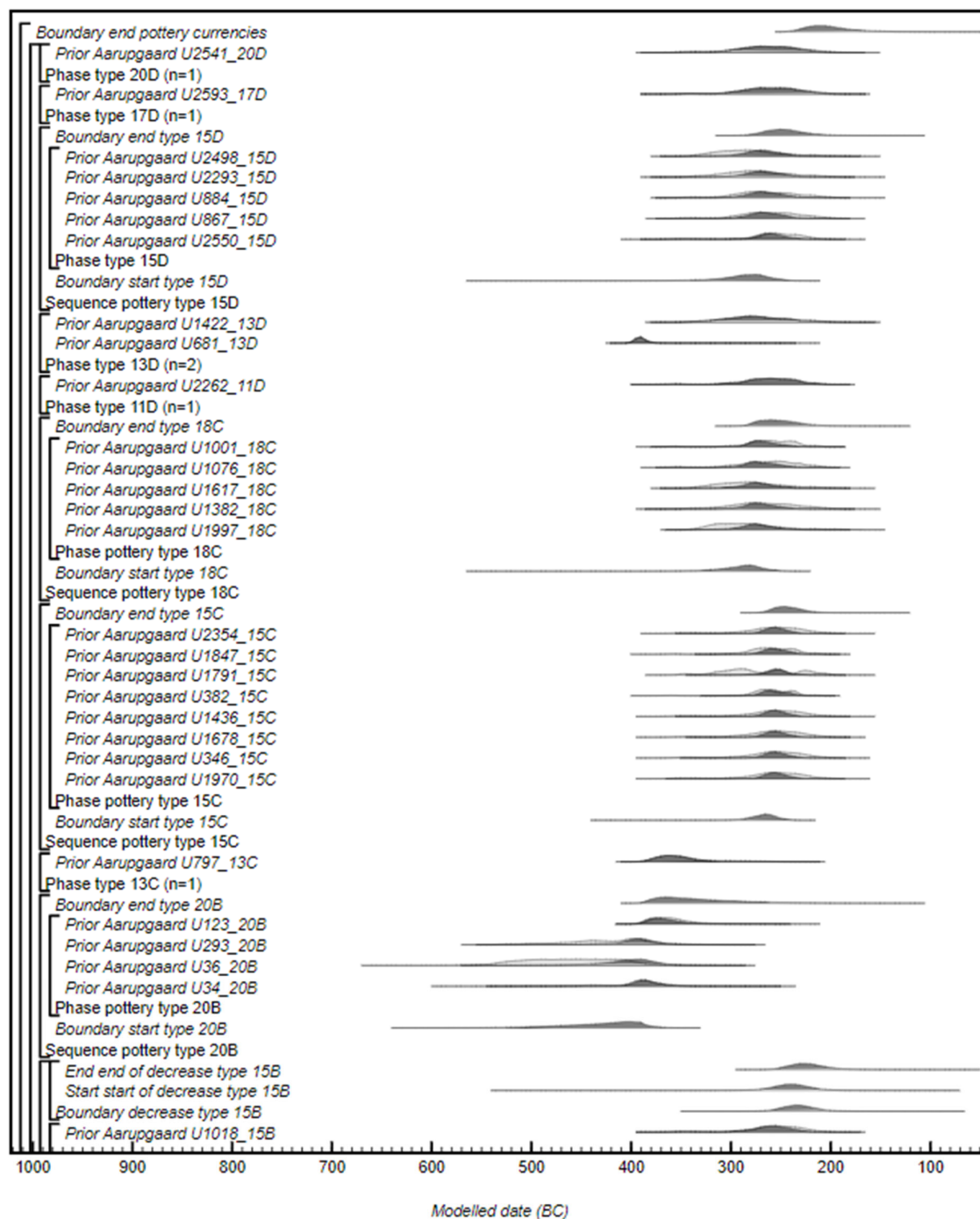
S1 Table. Graves containing possible heirlooms. The table includes graves containing artefacts with posterior estimated outlier probabilities >5% as estimated by a General Outlier_Model (2). All artefacts from the respective graves are included, but only outliers are marked in red. Identified heirlooms with residence offsets are marked in bold red.

Grave	object 1	object 2	object 3	object 4
Søhale x18	Narrow (8%)			
Søhale x30	Eye let ring	Triangular (29%)		
Søhale x38	Narrow (10%)			
Søhale x41	Circular	Narrow (11%)		
Søhale x65	Eyelet ring	Type 1 pin (18%)		
Aarre A99	Type 1 pin (34%)			
Aarre A155	Circular (70%)			
Aarre A281	Circular (11%)			
Aarupgaard U36	20B (6%)	Type 2		
Aarupgaard U51	15B (6%)	Type 1		
Aarupgaard U83	12B (6%)	Type 2		
Aarupgaard U123	20B	Circular	Triangular (9%)	
Aarupgaard U183	12B (7%)	Circular (11%)	Tongue-shaped	
Aarupgaard U293	20B	Circular (7%)		
Aarupgaard U928	15B	Type 2 (55%)	Circular	
Aarupgaard U1186	13A	Type 1	Simple iron ring (6%)	
Aarupgaard U1382	18C	Circular (32%)	Triangular	
Aarupgaard U1617	18C	Circular (62%)	Triangular	Pin with grooved head
Aarupgaard U1834	12B (8%)	Tongue-shaped		
Aarupgaard U2366	20B (17%)	Simple iron ring (6%)	Pin with rod-shaped head	
Aarupgaard U2455	Simple iron ring (6%)	Pin with rod-shaped head		
Aarupgaard U3452	15B (18%)	Type 1 (19%)		

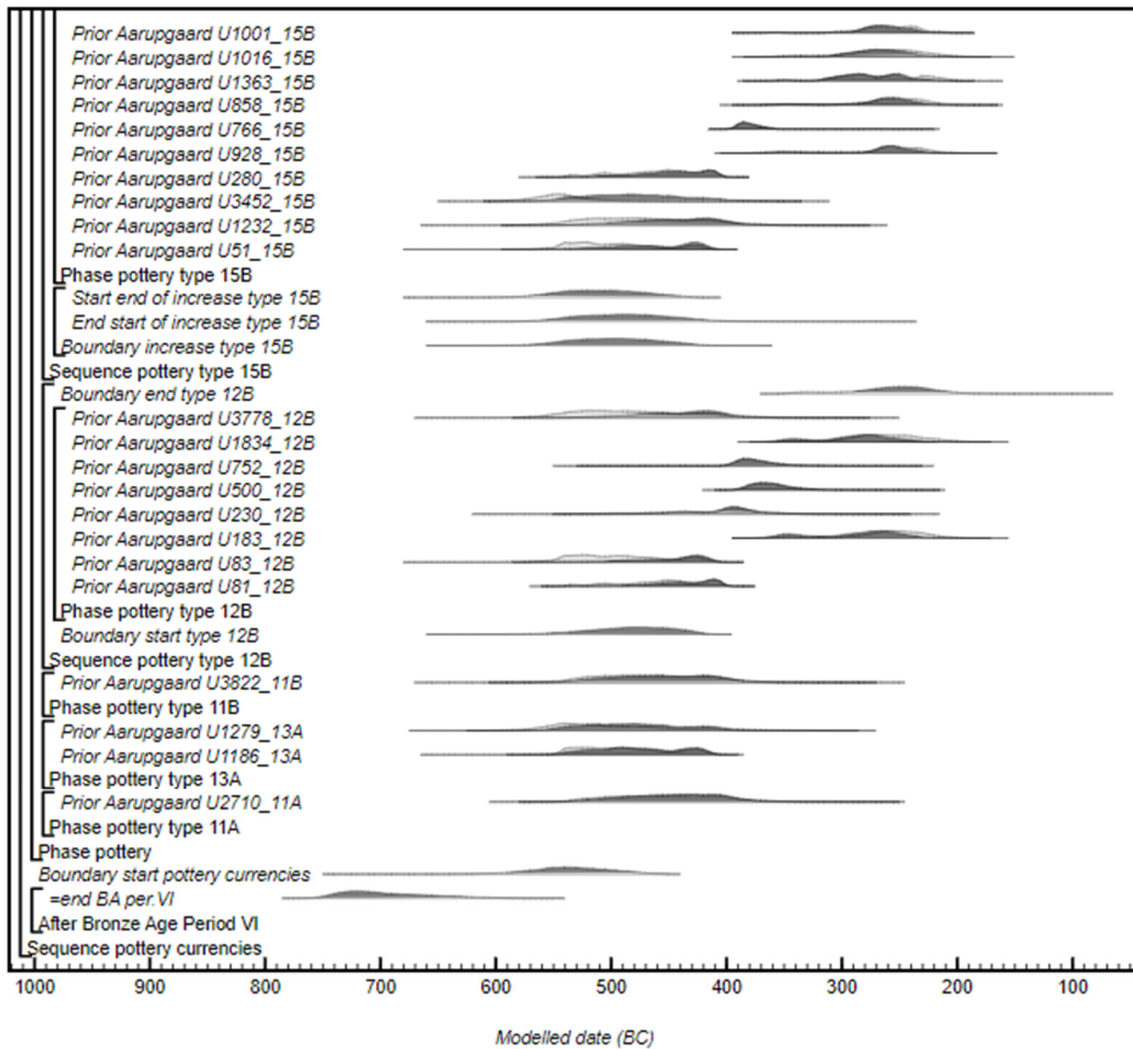
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S1 Fig. Identifying residence offsets. Posterior estimated dates from preferred currency model with a General Outlier_Model (2). a) circular head pin from Aarupgaard U293 estimated to be later than its burial date, b) circular head pin from Aarupgaard U1382 estimated to be earlier than its burial date, c) posterior estimated dates from Aarupgaard U1617, demonstrating the circular head pin to be an heirloom with a considerable residence offset.

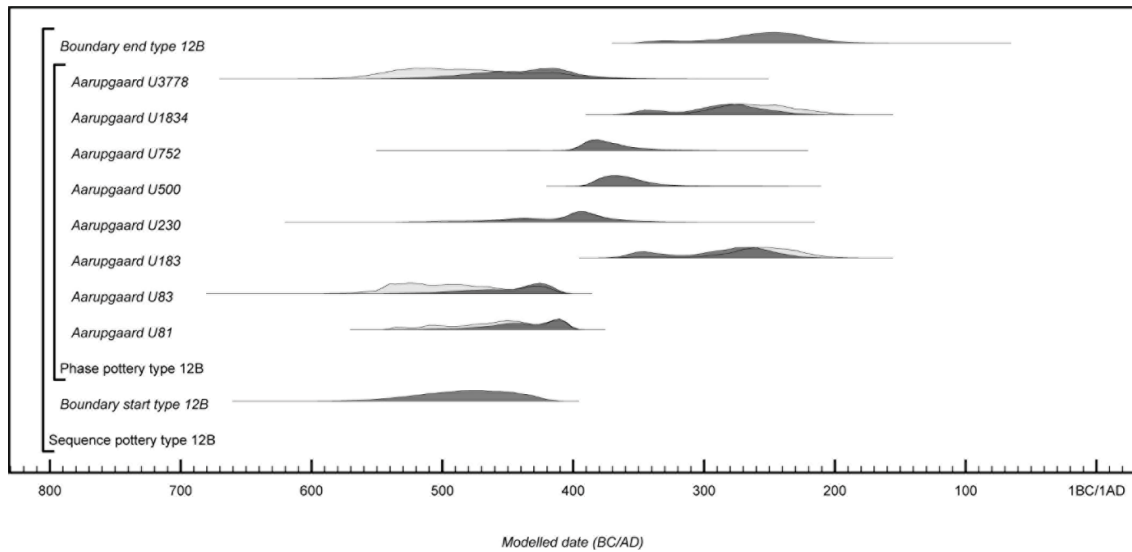


S1 Fig. Chronological model of pottery currencies (1/2).

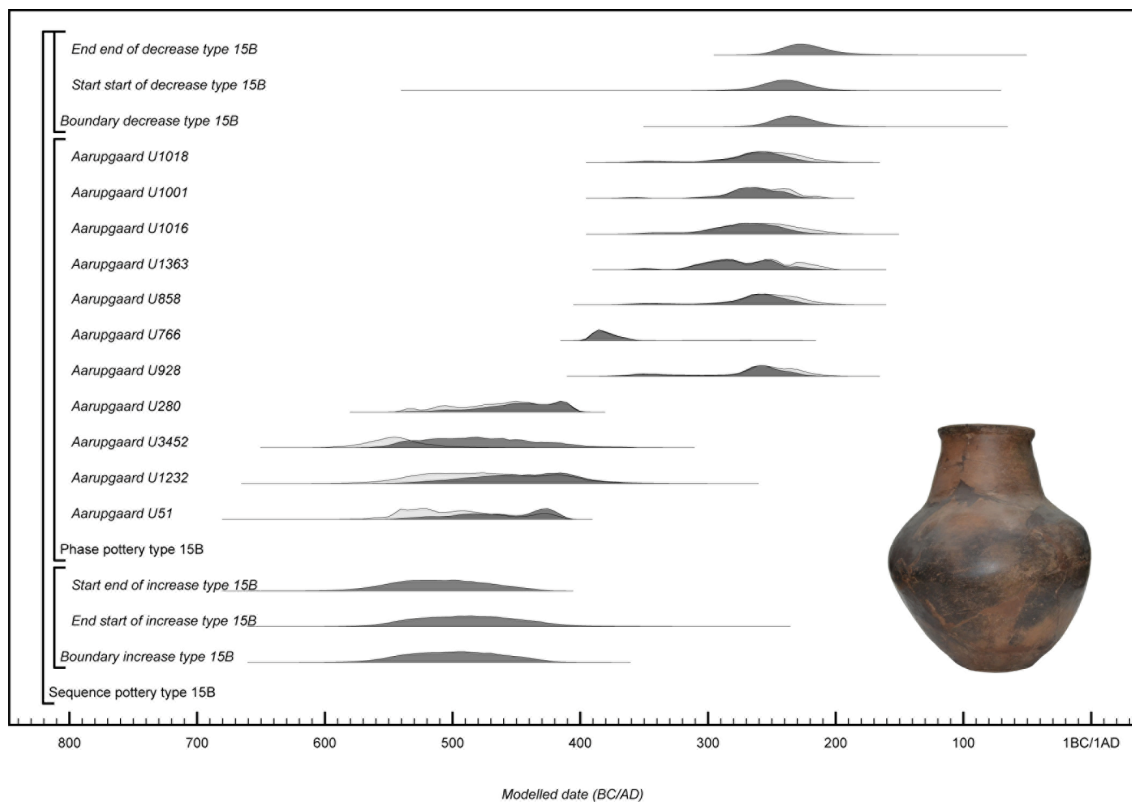


S1 Fig. Chronological model of pottery currencies (2/2).

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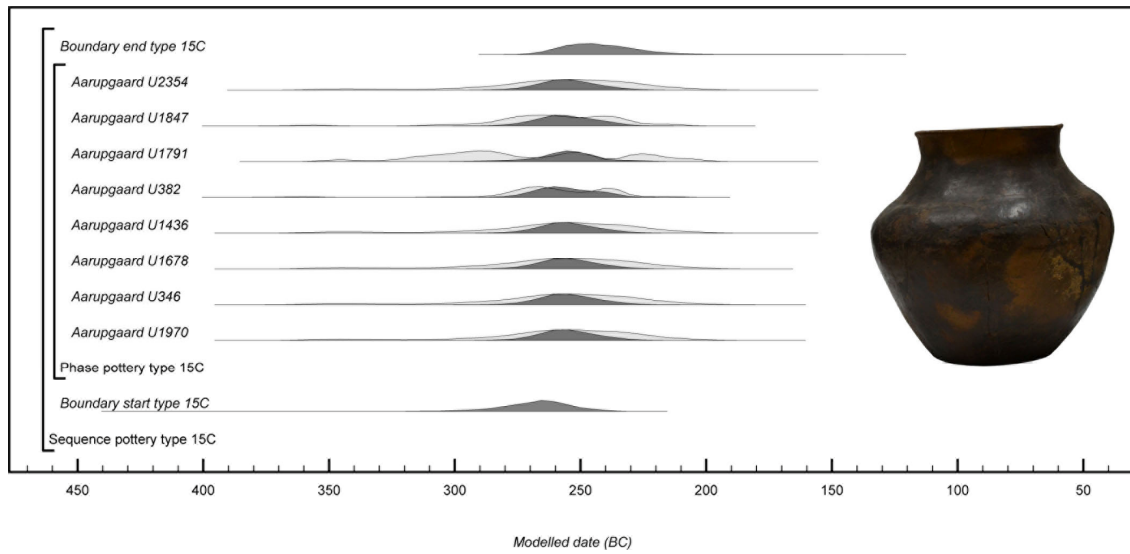


S1 Fig. Currency model of pottery type 12B.

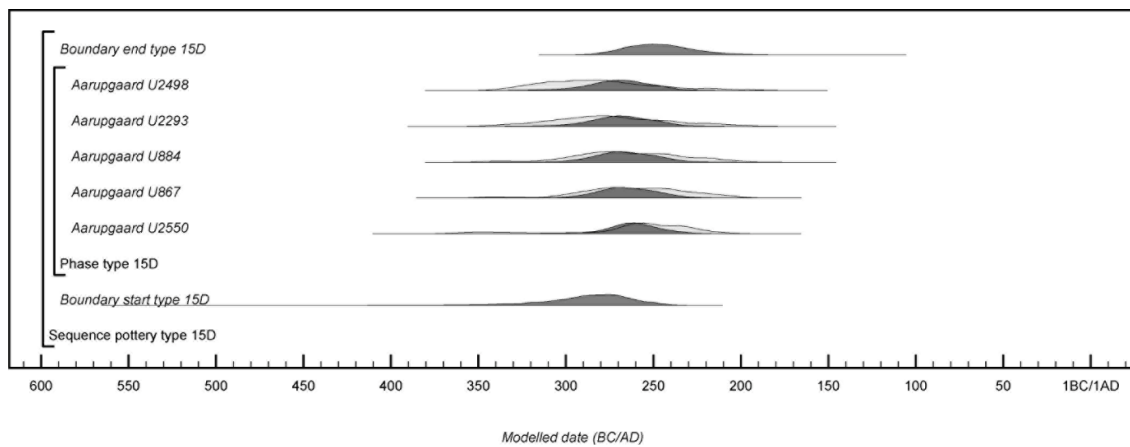


S1 Fig. Currency model of pottery type 15B. Example from grave U766 from Aarupgaard urnfield.

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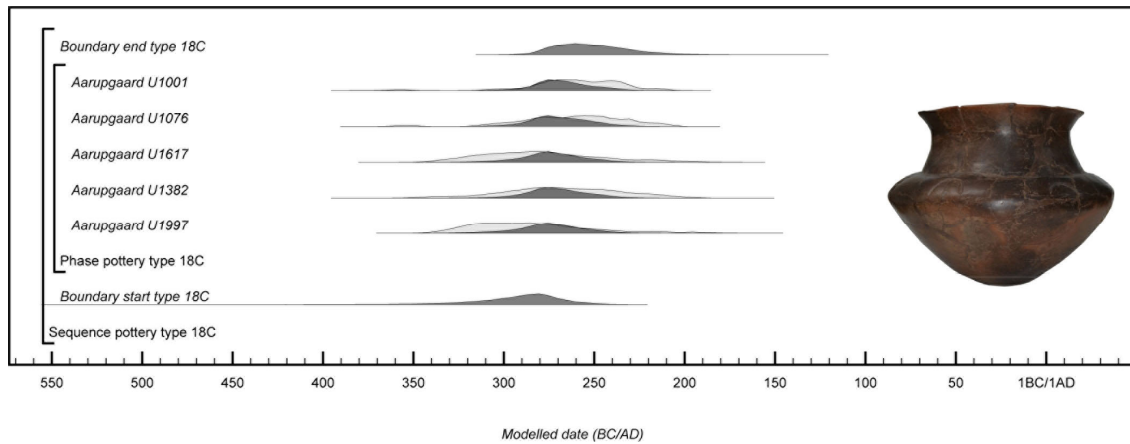


S1 Fig. Currency model of pottery type 15C. Example from grave U346 from Aarupgaard urnfield.

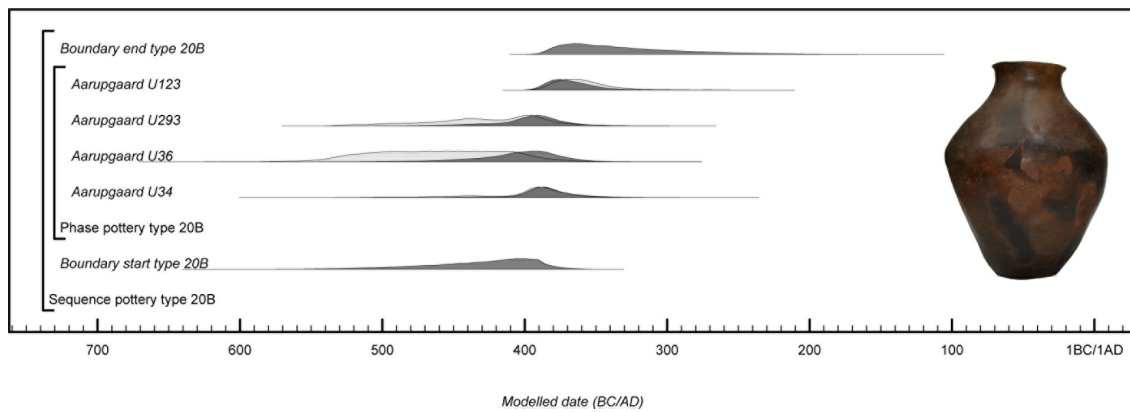


S1 Fig. Currency model of pottery type 15D.

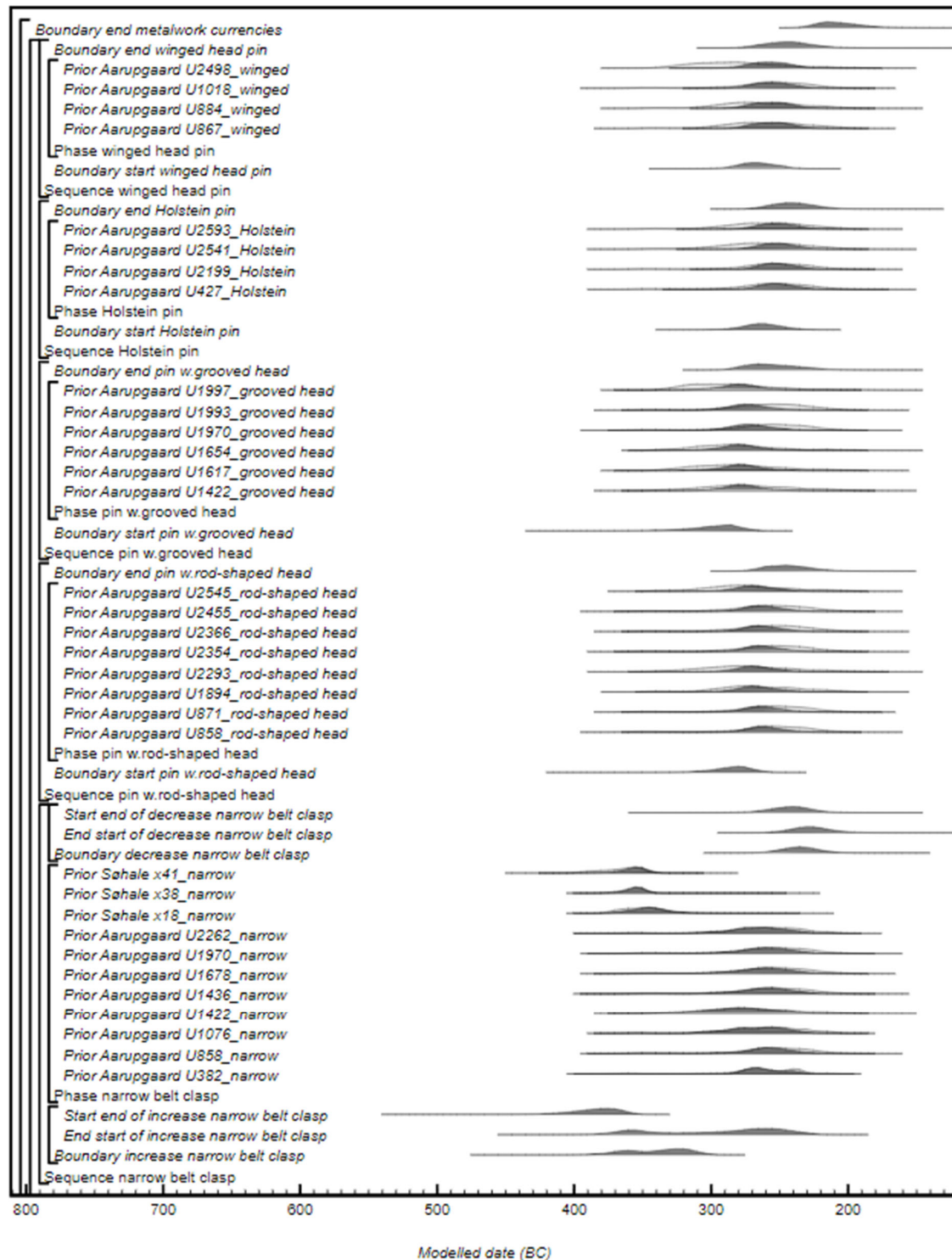
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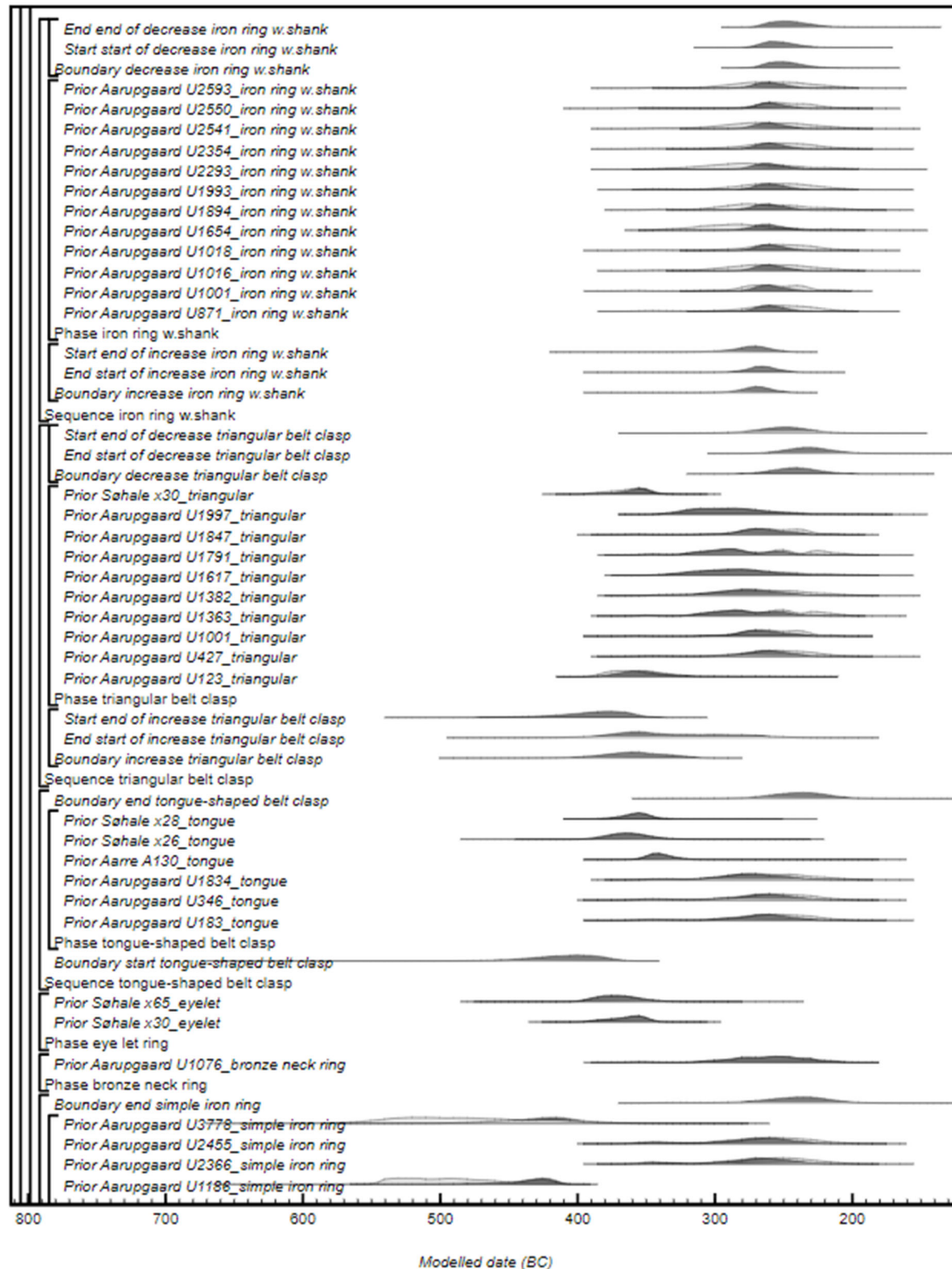
S1 Fig. Currency model of pottery type 18C. Example from grave U1001 from Aarupgaard urnfield.



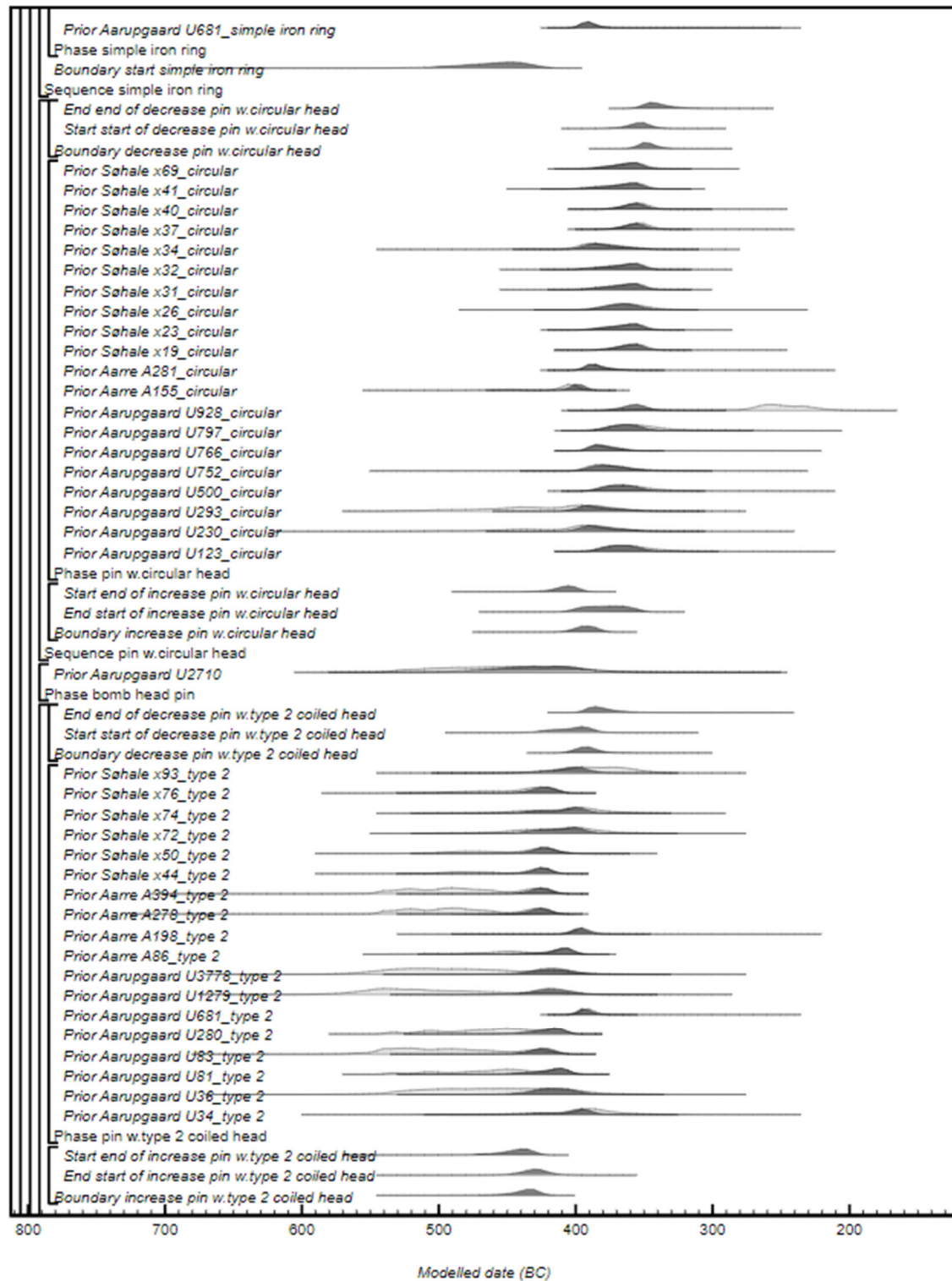
S1 Fig. Currency model of pottery type 20B. Example from grave U36 from Aarupgaard urnfield.



S1 Fig. Chronological model of metalwork currencies (1/4).

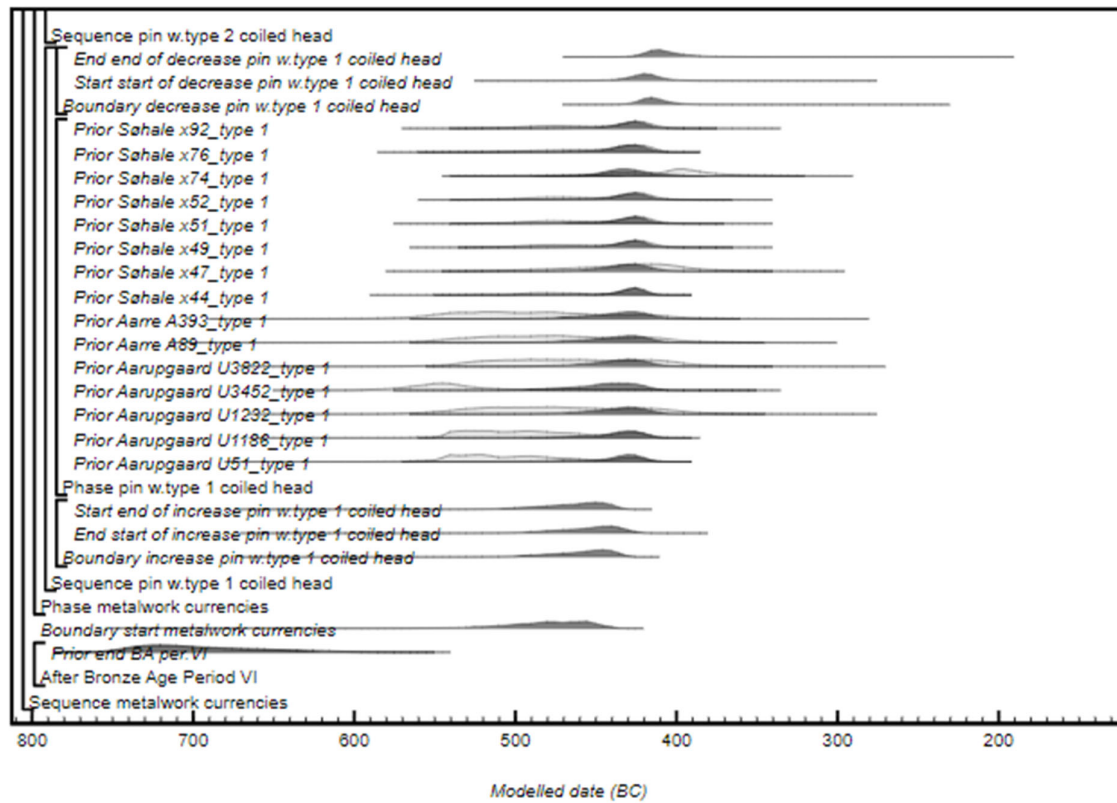


S1 Fig. Chronological model of metalwork currencies (2/4).



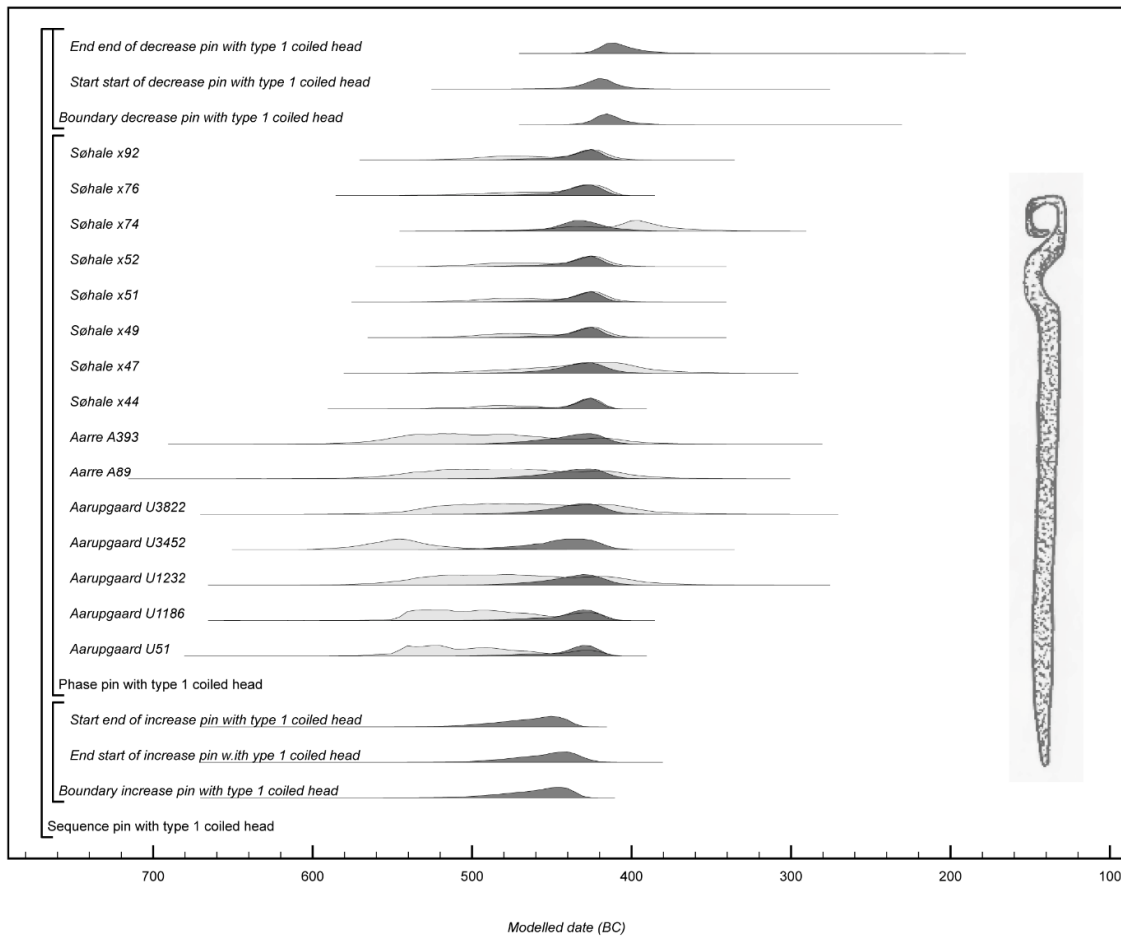
S1 Fig. Chronological model of metalwork currencies (3/4).

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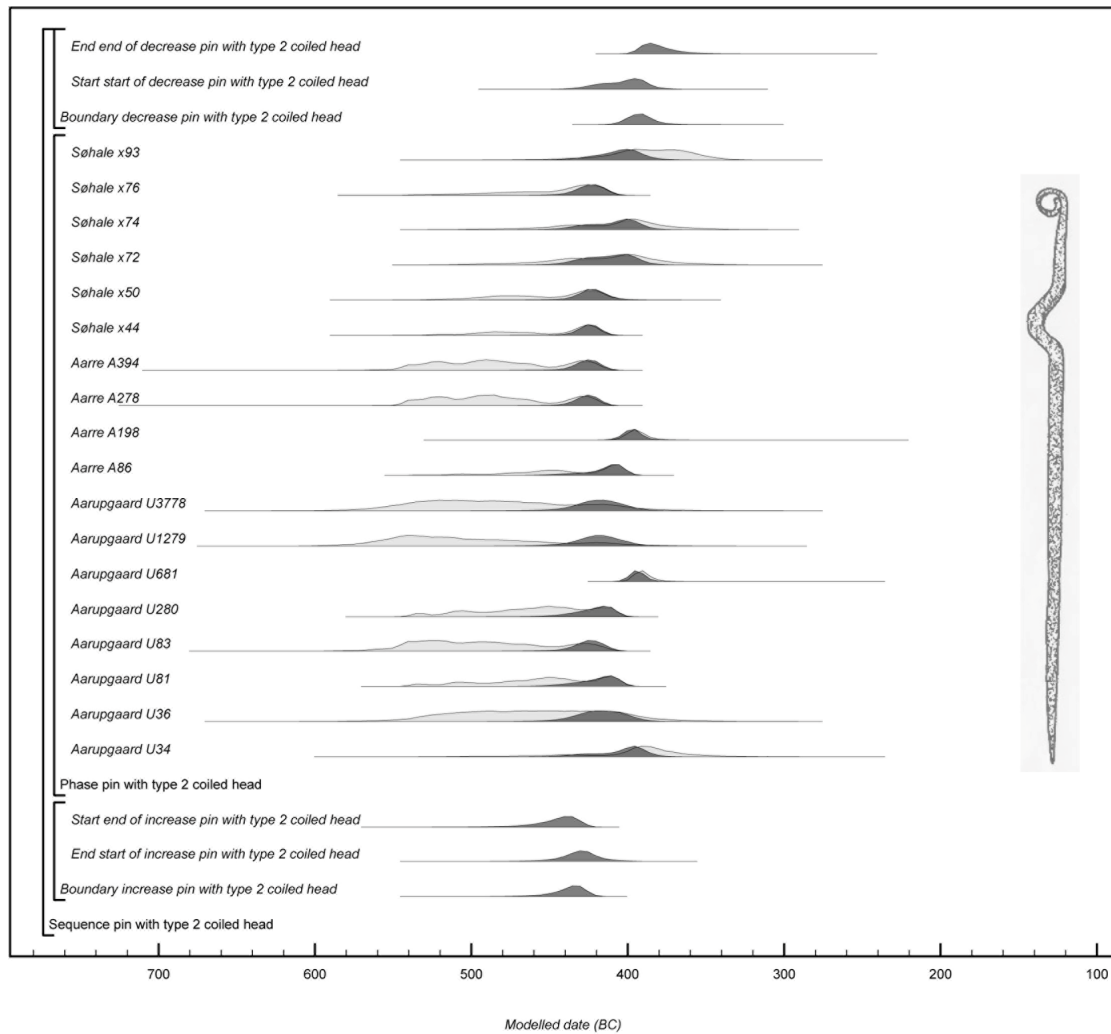
S1 Fig. Chronological model of metalwork currencies (4/4).

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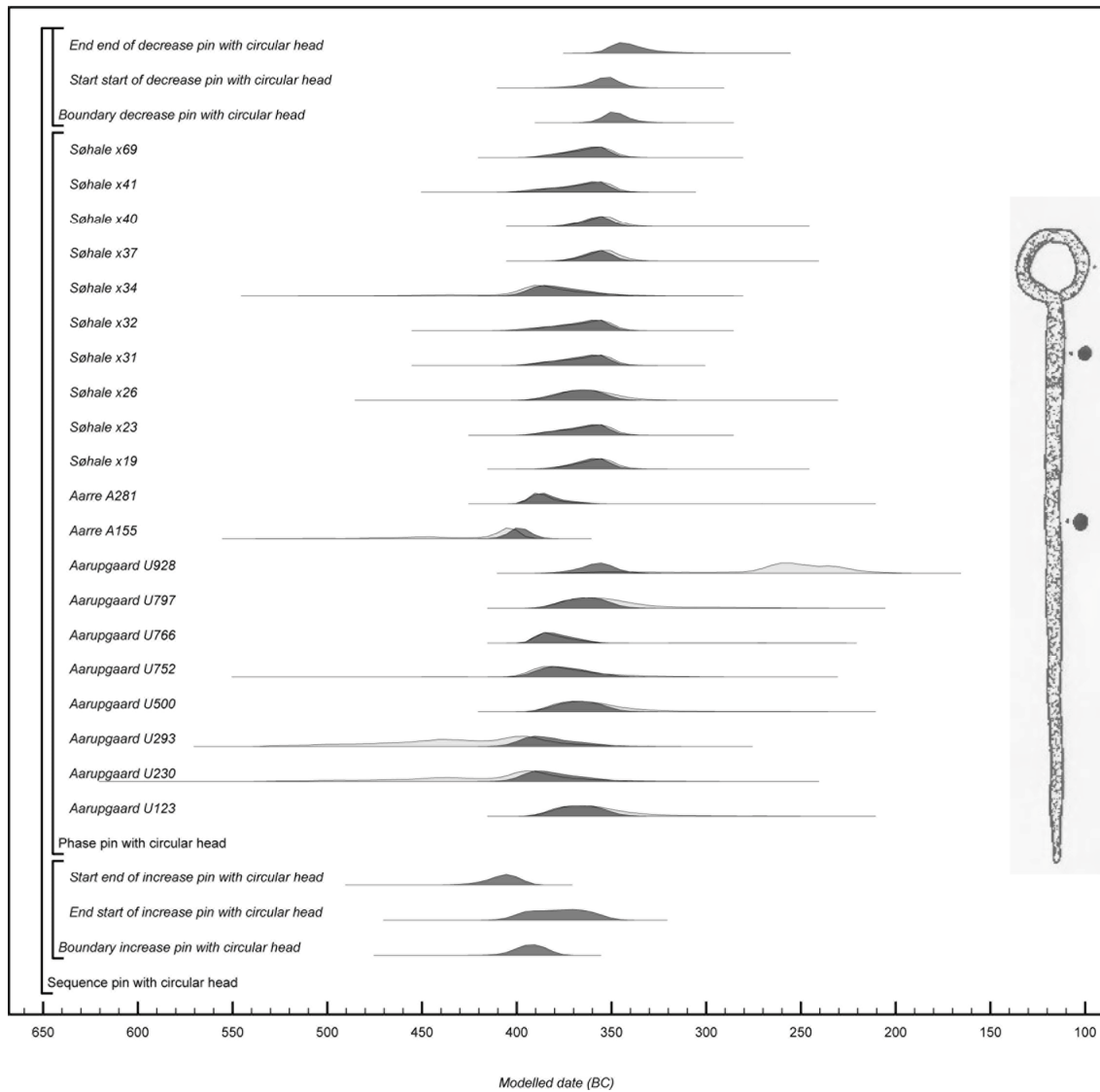
S1 Fig. Currency model of pin with type 1 coiled head. Example from grave U1186 from Aarupgaard urnfield.

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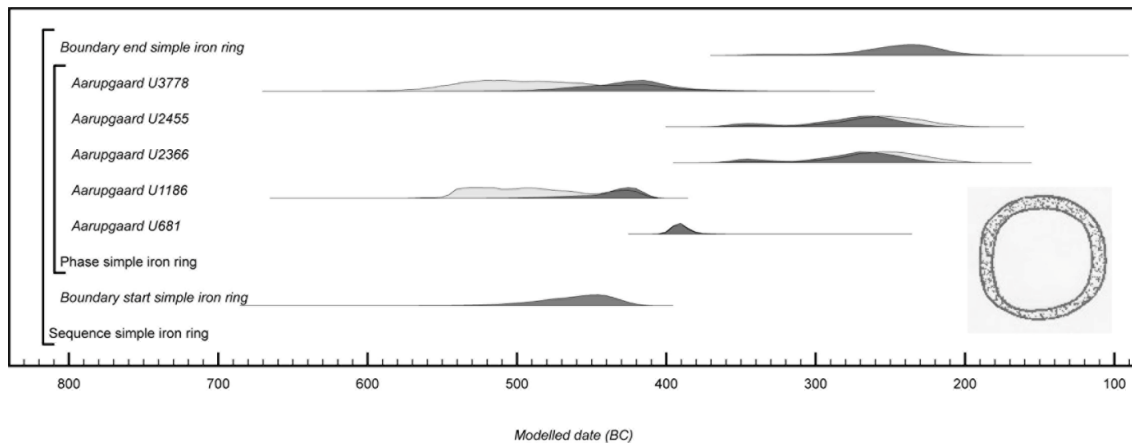
S1 Fig. Currency model of pin with type 2 coiled head. Example from grave U81 from Aarupgaard urnfield.

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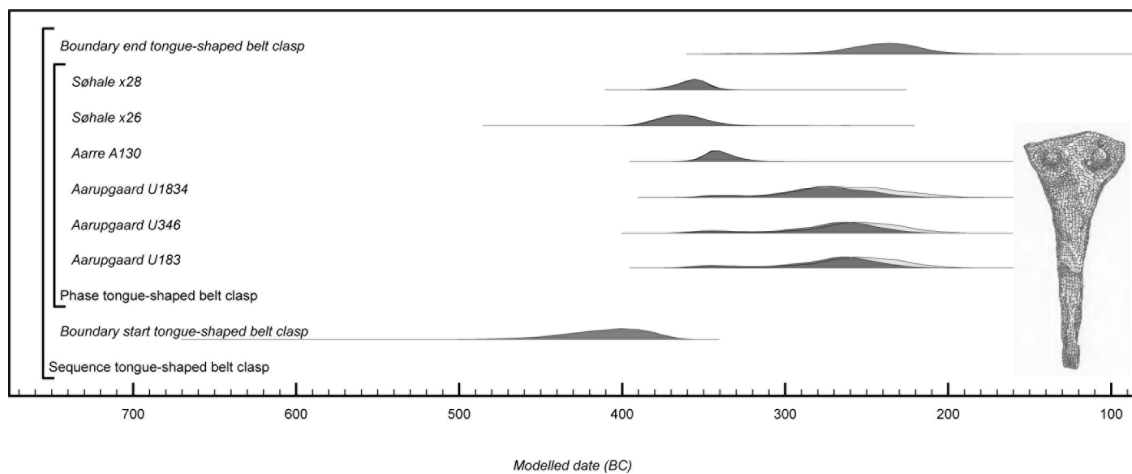


S1 Fig. Currency model of pin with circular head. Example from grave U500 from Aarupgaard urnfield.

S1 Fig. Currency model of pin with type 2 coiled head.

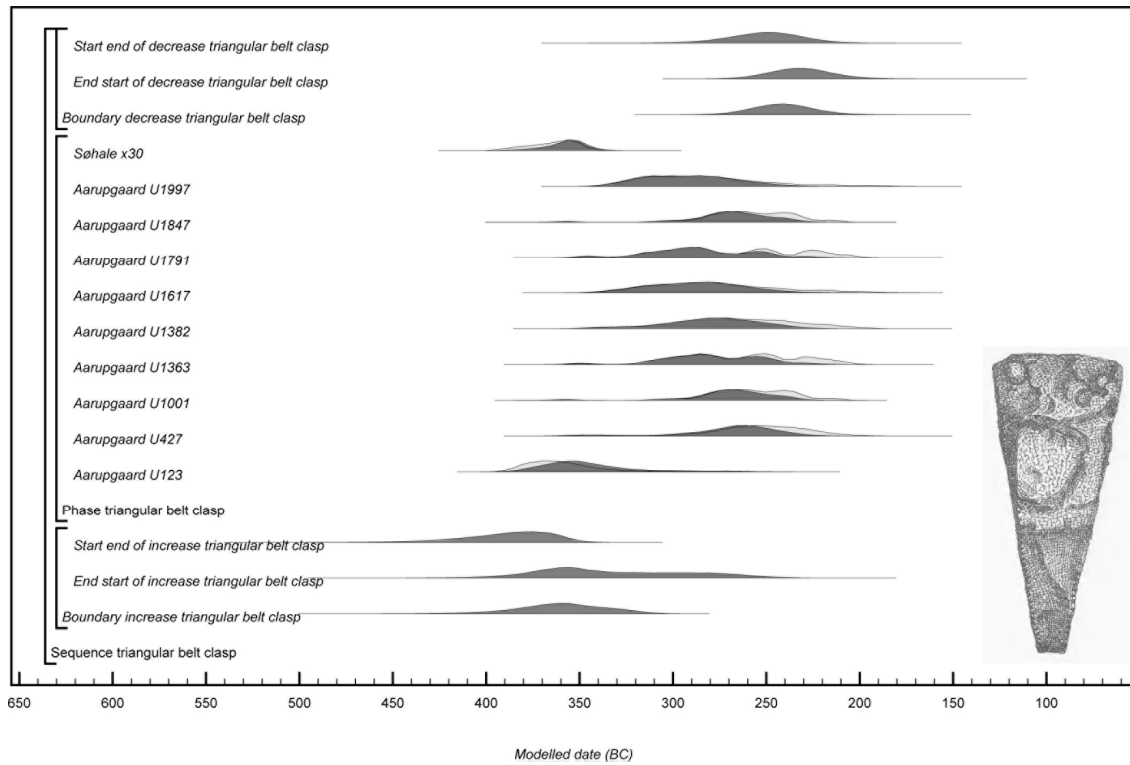


S1 Fig. Currency model of simple iron ring. Example from grave U1186 from Aarupgaard urnfield.



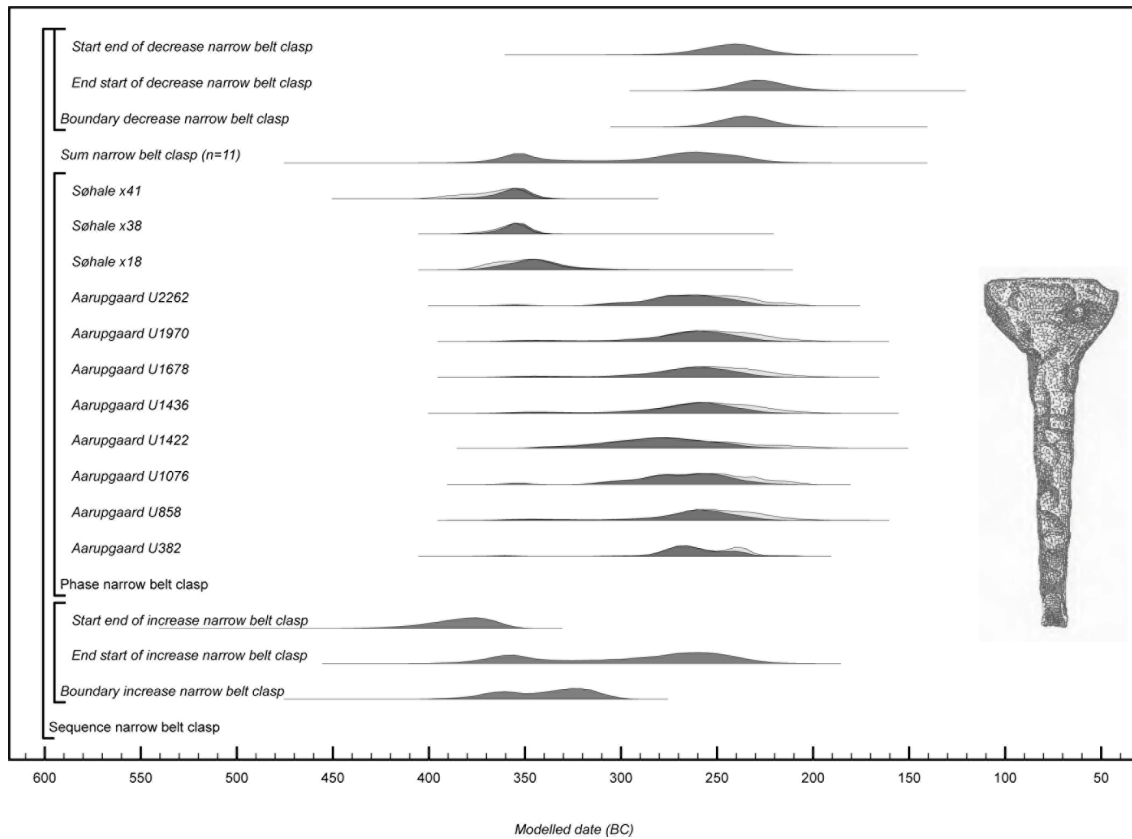
S1 Fig. Currency model of tongue-shaped belt clasp. Example from grave U1834 from Aarupgaard urnfield.

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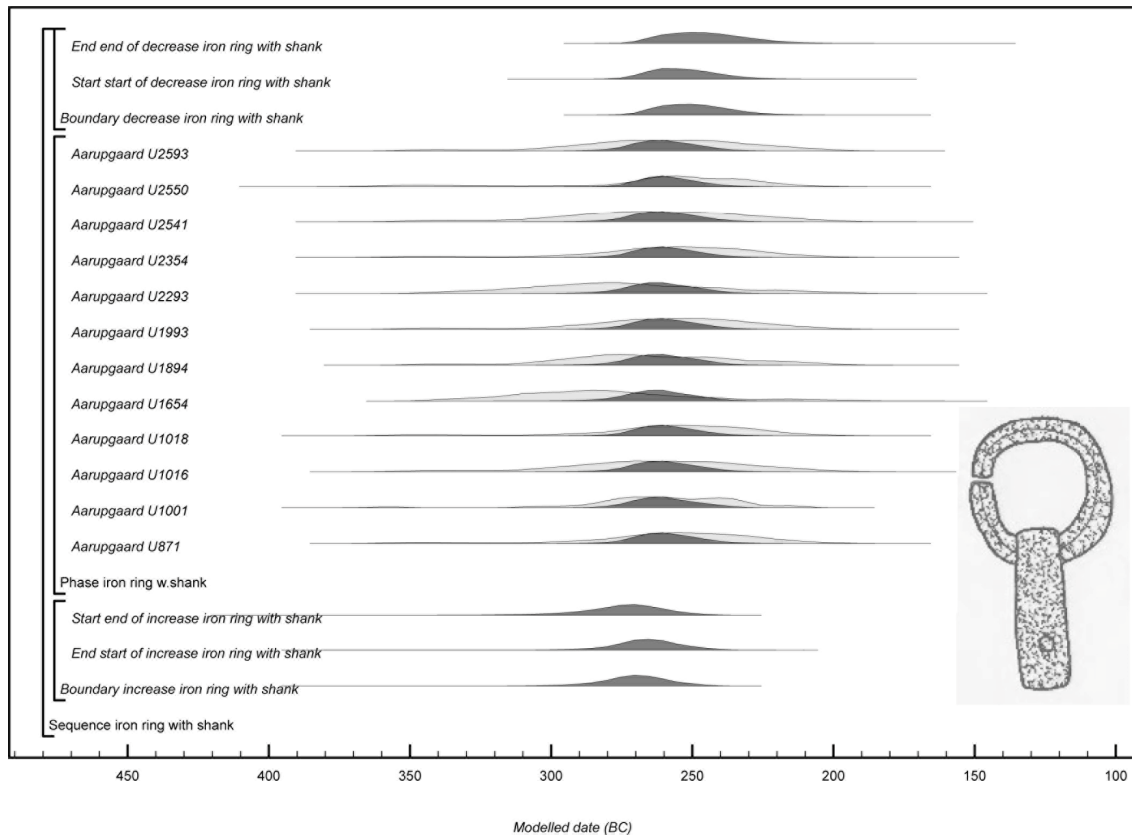
S1 Fig. Currency model of triangular belt clasp. Example from grave U1363 from Aarupgaard urnfield.

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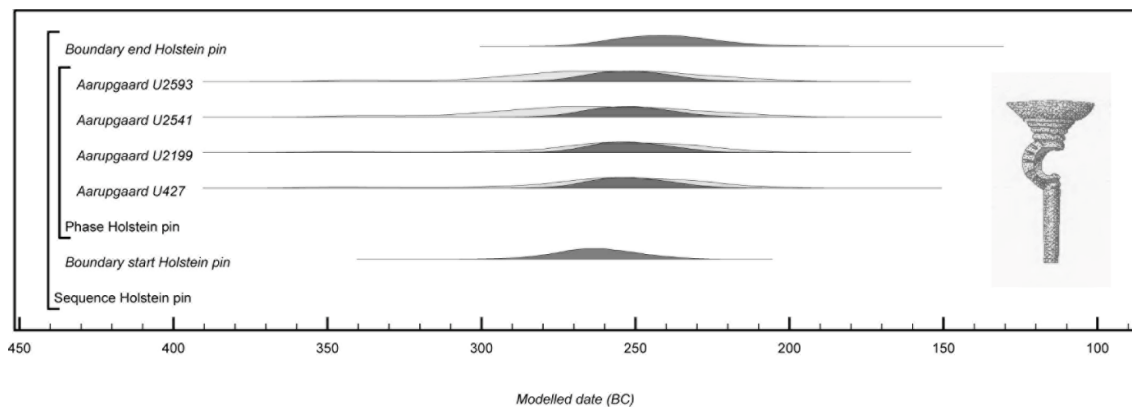


S1 Fig. Currency model of narrow belt clasp. Example from grave U1678 from Aarupgaard urnfield.

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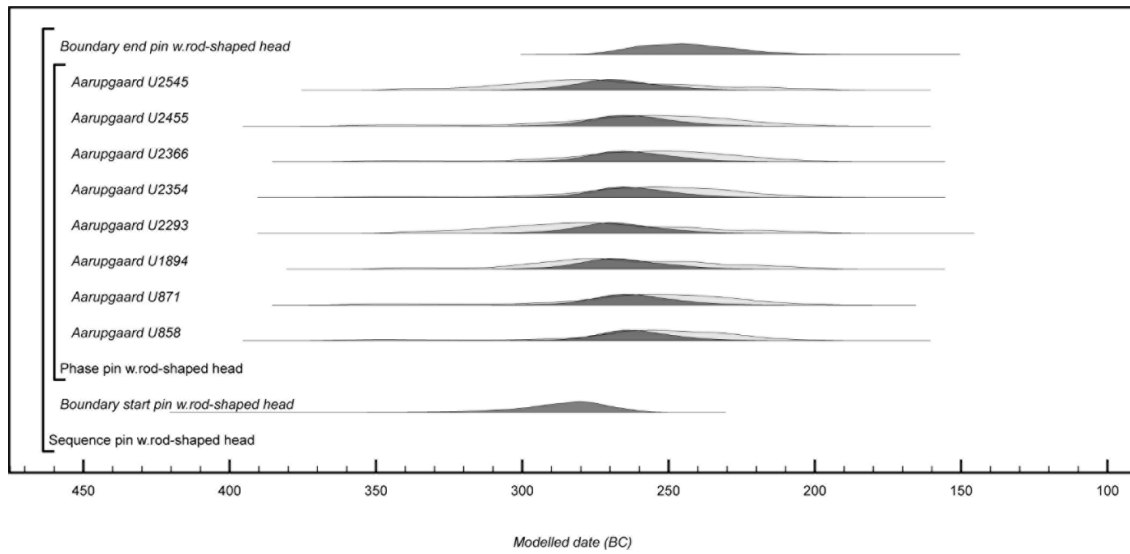


S1 Fig. Currency model of iron ring with shank. Example from grave U2550 from Aarupgaard urnfield.

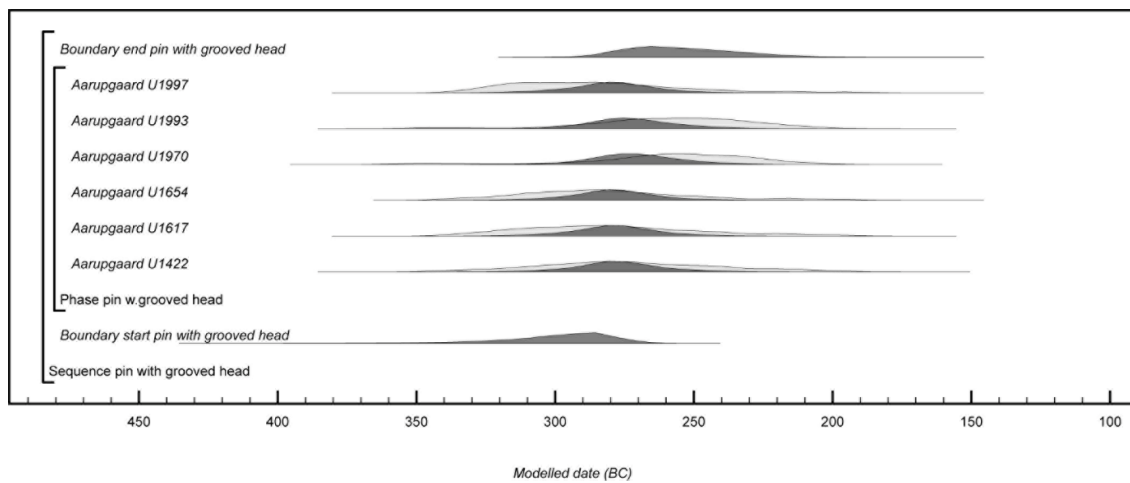


S1 Fig. Currency model of Holstein pin. Example from grave U2541 from Aarupgaard urnfield.

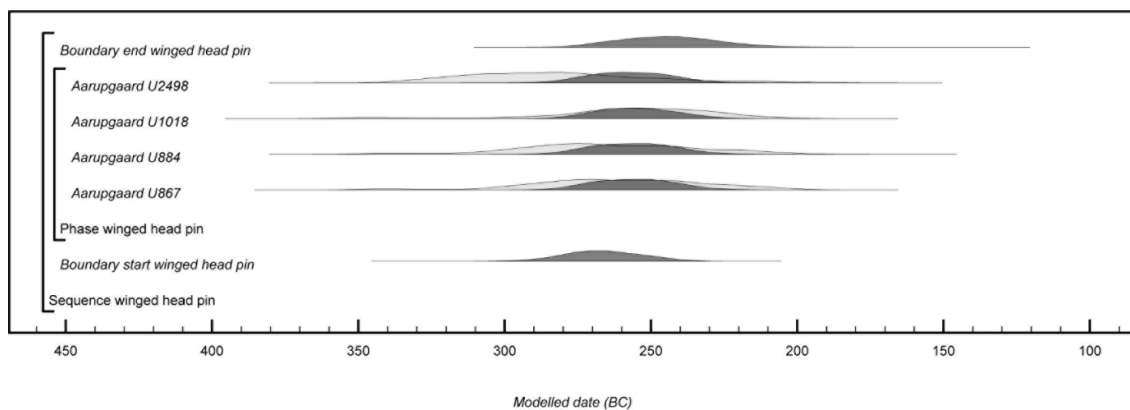
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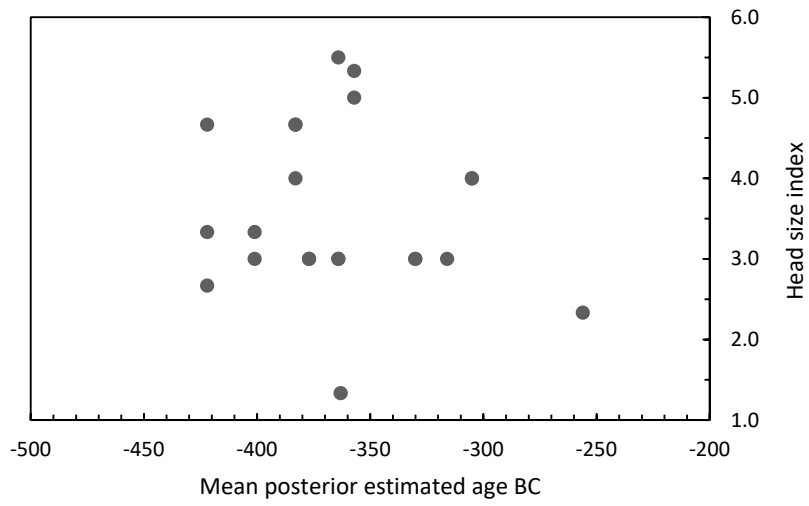
S1 Fig. Currency model of pin with rod-shaped head.



S1 Fig. Currency model of pin with rod-shaped head.

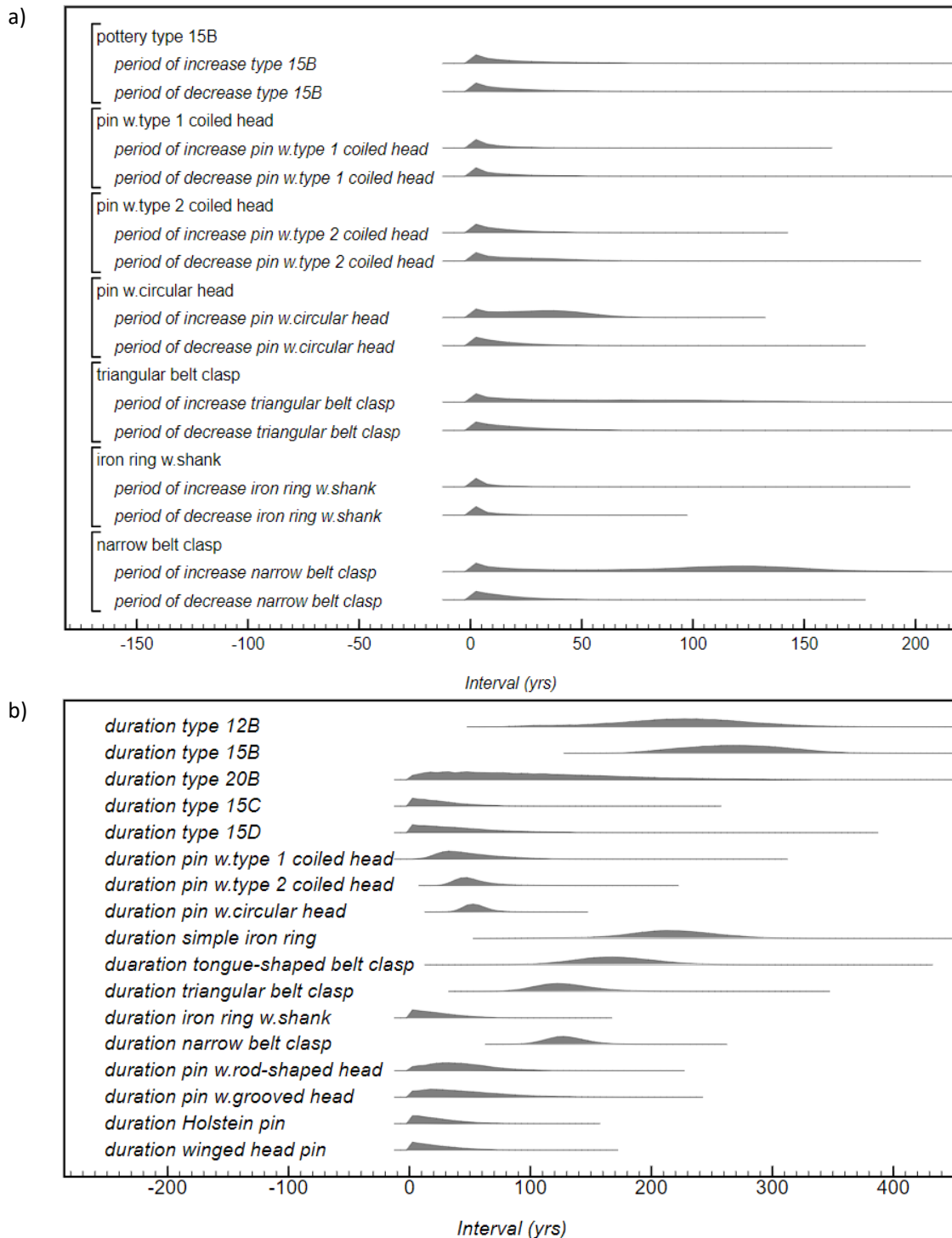


S1 Fig. Currency model of winged head pin.

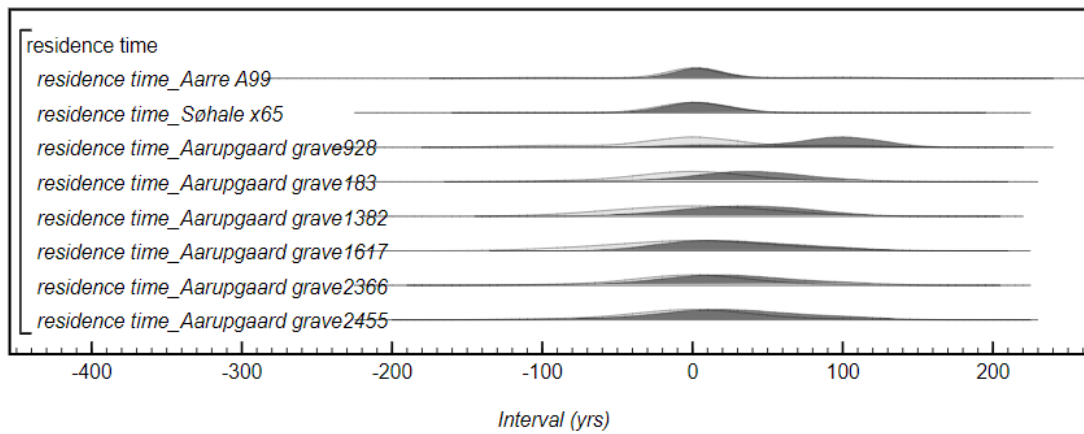


SI Fig. Circular head pins from Aarupgaard urnfield. Plotted are the head size index against mean ages estimated by the currency model.

Discussion



S1 Fig. Posterior estimated parameters from currency models. a) Periods of production increase and decrease estimated by trapezium prior models, b) duration of currencies modelled in bounded phases.



SI Fig. Posterior estimated residence time.

References

1. Jensen CK. Kontekstuel kronologi: en revision af det kronologiske grundlag for førromersk jernalder i Sydsandinavien. Højbjerg: Kulturlaget; 2005.
2. Bronk Ramsey C. Dealing with Outliers and Offsets in Radiocarbon Dating. Radiocarbon. 2009; 51(3): 1023-45. <https://doi.org/10.1017/S0033822200034093>

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OxCal model code

The following CQL code will run in OxCal v4 (1), which is available online at <https://c14.arch.ox.ac.uk/>. Full details of how the program works and what individual functions are designed to do is given at http://c14.arch.ox.ac.uk/oxcalhelp/hlp_contents.html. A full bibliography is also provided. Please contact the corresponding author if you experience difficulties using the models.

Urnfield model A

```
Plot()
{
  MCMC_Sample()
  {
  };
  Outlier_Model ("cremation", Exp(0.9,-10,-0.1), U(1,3),"t");
  Sequence("BA per.V-VI")
  {
    Boundary("start BA per.V");
    Phase("BA per.V")
    {
      R_Date("AAR-8786(PB4) Ø.Herup CB", 2722, 25)
      {
        Outlier("cremation", 1);
      };
      R_Date("AAR-8787 (PB5) Sevel Kalkværk CB", 2650, 25)
      {
        Outlier("cremation", 1);
      };
      R_Date("AAR-9520 (PB24) Jersild CB", 2683, 36)
      {
        Outlier("cremation", 1);
      };
      Combine("Gl. Brydegård")
      {
        R_Date("AAR-9570 (PB32) Gl. Brydegård pitch", 2706, 35);
        R_Date("AAR-9576 (PB38) Gl. Brydegård CB", 2714, 34)
        {
          Outlier("cremation", 1);
        }
      }
    }
  }
}
```

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```
};
};
R_Date("AAR-9575 (PB37) Lusehøj GX CB", 2611, 33)
{
  Outlier("cremation", 1);
};
};
Boundary("Transition V/VI");
Phase("BA VI")
{
  R_Date("AAR-9571 (PB33) Lerbjerg I CB", 2486, 25)
  {
    Outlier("cremation", 1);
  };
  R_Date("AAR-9568 (PB30) Lerbjerg I pitch", 2851, 24)
  {
    Outlier();
  };
  Combine("Lerbjerg II")
  {
    R_Date("AAR-9569 (PB31) Lerbjerg II pitch", 2459, 41);
    R_Date("AAR-9573 (PB35) Lerbjerg II CB", 2502, 39)
    {
      Outlier("cremation", 1);
    };
  };
};
Boundary("end BA per.VI");
};
Page( );
Sequence("urnfields")
{
  After("Bronze Age Period VI")
  {
    Date("=end BA per.VI");
  };
  Boundary("start urnfields");
  Phase("urnfields")
  {
    Sequence ("Aarre urnfield")
    {
      Boundary("start Aarre");
      Phase ("Aarre urnfield cemetery")
      {
        R_Date("Aarre A89 RICH-25356", 2464, 27)
        {
          Outlier("cremation", 1);
        };
        R_Date("Aarre A281 comb", 2296, 15)
        {
          Outlier("cremation", 1);
        };
      };
    };
  };
};
```

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```
};  
Sequence ("A86")  
{  
  After ("older CC from A86")  
  {  
    R_Date ("A86 KIA-53941", 2463, 25);  
  };  
  Phase("A86")  
  {  
    R_Date ("Aarre A86 comb KIA-53942", 2382, 19)  
    {  
      Outlier ("cremation", 1);  
    };  
  };  
};  
Combine("A95")  
{  
  R_Date ("RICH-25342 CB", 2428, 27)  
  {  
    Outlier ("cremation", 1);  
  };  
  R_Date ("A95 twigs comb", 2399, 19);  
};  
Sequence ("A99")  
{  
  After ("older CC from A99")  
  {  
    R_Date ("A99 RICH-25071", 2269, 29);  
    R_Date ("A99 RICH-25066", 2251, 30);  
    R_Date ("A99 RICH-25067", 3115, 31);  
  };  
  Phase("A99")  
  {  
    R_Date ("Aarre A99 GrM-16774", 2255, 20)  
    {  
      Outlier ("cremation", 1);  
    };  
    R_Date ("RICH-25069", 2085, 29)  
    {  
      Outlier();  
    };  
  };  
};  
Sequence ("A117")  
{  
  After ("older CC from A117")  
  {  
    R_Date ("A117 KIA-53943", 2449, 25);  
    R_Date ("A117 KIA-53944", 2495, 24);  
  };  
  Phase("A117")
```

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```
{
  R_Date ("Aarre A117 CB comb", 2431, 15)
  {
    Outlier ("cremation", 1);
  };
};
Sequence ("A130")
{
  After ("older CC from A130")
  {
    R_Date ("A130 KIA-53945", 2585, 25);
  };
  Combine("A130")
  {
    R_Date ("Aarre A130 KIA-53947", 2253, 18)
    {
      Outlier ("cremation", 1);
    };
    R_Date ("A130 KIA-53946", 2156, 24);
  };
};
Sequence ("A155")
{
  After ("older CC from A155")
  {
    R_Date ("A155 KIA-53948", 2494, 24);
    R_Date ("A155 KIA-53949", 2466, 24);
  };
  Phase("A155")
  {
    R_Date ("Aarre A155 comb KIA-53950", 2367, 18)
    {
      Outlier ("cremation", 1);
    };
  };
};
Sequence ("A198")
{
  After ("older CC from A198")
  {
    R_Date ("A198 KIA-53951", 2967,24);
  };
  Phase("A198")
  {
    R_Date ("Aarre A198 comb KIA-53952", 2325, 21)
    {
      Outlier ("cremation", 1);
    };
  };
};
};
```

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```
Combine("A278")
{
  R_Date ("Aarre A278 KIA-53955", 2463, 19)
  {
    Outlier ("cremation", 1);
  };
  R_Date ("A278 grass comb", 2423, 18);
};
Sequence ("A393")
{
  After ("older CC from A393")
  {
    R_Date ("A393 RICH-25068", 2901, 32);
    R_Date ("A393 RICH-25070", 2914, 32);
    R_Date ("A393 KIA-52411", 3134, 25);
    R_Date ("A393 KIA-52412", 3150, 27);
    R_Date ("A393 KIA-52413", 2611, 27);
  };
  Phase("A393")
  {
    R_Date ("Aarre A393 RICH-25341", 2480, 27)
    {
      Outlier ("cremation", 1);
    };
  };
  Sequence ("A394")
  {
    After ("older CC from A394")
    {
      R_Date ("A394 KIA-52414", 2778, 27);
      R_Date ("A394 KIA-52415", 2843, 26);
      R_Date ("A394 KIA-52416", 2772, 26);
      R_Date ("A394 KIA-52417", 2719, 27);
      R_Date ("A394 KIA-53983", 3029, 24);
    };
    Phase("A394")
    {
      R_Date ("Aarre A394 comb", 2446,14)
      {
        Outlier ("cremation", 1);
      };
    };
  };
  Span("duration Aarre urnfield");
  KDE_Plot("Aarre urnfield",);
  Boundary("end Aarre");
};
Page( );
Sequence("Aarupgaard urnfield - entrance model")
```

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```
{  
  Boundary("start Aarupgaard");  
  Phase("founding graves")  
  {  
    R_Date("Aarupgaard grave 3869", 2507, 14)  
    {  
      Outlier ("cremation", 1);  
    };  
    R_Date("Aarupgaard grave 3330 comb", 2509, 14)  
    {  
      Outlier ("cremation", 1);  
    };  
    R_Date("Aarupgaard grave 3340", 2477, 27)  
    {  
      Outlier ("cremation", 1);  
    };  
  };  
  Phase("multiple pathways")  
  {  
    R_Date("Aarupgaard grave 83 comb", 2443, 21)  
    {  
      Outlier ("cremation", 1);  
    };  
    R_Date("Aarupgaard grave 34", 2346, 28)  
    {  
      Outlier ("cremation", 1);  
    };  
    R_Date("Aarupgaard grave 36", 2424, 30)  
    {  
      Outlier ("cremation", 1);  
    };  
    R_Date("Aarupgaard grave 81 comb", 2395, 18)  
    {  
      Outlier ("cremation", 1);  
    };  
    R_Date("Aarupgaard grave 123", 2277, 26)  
    {  
      Outlier ("cremation", 1);  
    };  
    R_Date("Aarupgaard grave 230", 2362, 25)  
    {  
      Outlier ("cremation", 1);  
    };  
    R_Date("Aarupgaard grave 280 comb", 2404, 15)  
    {  
      Outlier ("cremation", 1);  
    };  
    R_Date("Aarupgaard grave 293", 2378, 23)  
    {  
      Outlier ("cremation", 1);  
    };  
  };  
}
```

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```
R_Date("Aarupgaard grave 500", 2278, 23)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 681 comb", 2308, 14)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 752", 2317, 26)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 766 comb", 2271, 16)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 797", 2255, 28)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 1186 comb", 2437, 15)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 1279", 2467, 26)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 3452", 2525, 25)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 3778", 2452, 25)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 51 comb", 2446, 16)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 2710", 2411, 27)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 3822", 2433, 26)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 1232", 2443, 27)
{
  Outlier ("cremation", 1);
};
```

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```
};
};
Phase("2 pathways")
{
  R_Date("Aarupgaard grave 183", 2243, 23)
  {
    Outlier ("cremation", 1);
  };
  R_Date("Aarupgaard grave 346", 2246, 24)
  {
    Outlier ("cremation", 1);
  };
  R_Date("Aarupgaard grave 382 comb", 2260, 16)
  {
    Outlier ("cremation", 1);
  };
  R_Date("Aarupgaard grave 858", 2258, 23)
  {
    Outlier ("cremation", 1);
  };
  R_Date("Aarupgaard grave 928", 2297, 25)
  {
    Outlier ("cremation", 1);
  };
  R_Date("Aarupgaard grave 1001 comb", 2244, 15)
  {
    Outlier ("cremation", 1);
  };
  R_Date("Aarupgaard grave 1016", 2220, 25)
  {
    Outlier ("cremation", 1);
  };
  R_Date("Aarupgaard grave 1076 comb", 2229, 15)
  {
    Outlier ("cremation", 1);
  };
  R_Date("Aarupgaard grave 1363 comb", 2213, 16)
  {
    Outlier ("cremation", 1);
  };
  R_Date("Aarupgaard grave 1382", 2201, 27)
  {
    Outlier ("cremation", 1);
  };
  R_Date("Aarupgaard grave 1422", 2186, 26)
  {
    Outlier ("cremation", 1);
  };
  R_Date("Aarupgaard grave 1436", 2252, 28)
  {
    Outlier ("cremation", 1);
  };
}
```

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```
};  
R_Date("Aarupgaard grave 1617", 2163, 28)  
{  
  Outlier ("cremation", 1);  
};  
R_Date("Aarupgaard grave 1678", 2243, 25)  
{  
  Outlier ("cremation", 1);  
};  
R_Date("Aarupgaard grave 1791 comb", 2199, 18)  
{  
  Outlier ("cremation", 1);  
};  
R_Date("Aarupgaard grave 1847 comb", 2244, 16)  
{  
  Outlier ("cremation", 1);  
};  
R_Date("Aarupgaard grave 1970", 2246, 23)  
{  
  Outlier ("cremation", 1);  
};  
R_Date("Aarupgaard grave 1997", 2146, 27)  
{  
  Outlier ("cremation", 1);  
};  
R_Date("Aarupgaard grave 2262 comb", 2237, 19)  
{  
  Outlier ("cremation", 1);  
};  
R_Date("Aarupgaard grave 2541", 2216, 26)  
{  
  Outlier ("cremation", 1);  
};  
R_Date("Aarupgaard grave 2550", 2291, 26)  
{  
  Outlier ("cremation", 1);  
};  
R_Date("KIA-55388_Aarupgaard grave 427",2241,17)  
{  
  Outlier("cremation", 1);  
};  
R_Date("KIA-55389_Aarupgaard grave 867",2219,12)  
{  
  Outlier("cremation", 1);  
};  
R_Date("KIA-55390_Aarupgaard grave 871",2239,17)  
{  
  Outlier("cremation", 1);  
};  
R_Date("KIA-55391_Aarupgaard grave 884",2211,16)  
{
```

```
Outlier("cremation", 1);
};
R_Date("KIA-55392_Aarupgaard grave 1018",2242,17)
{
  Outlier("cremation", 1);
};
R_Date("KIA-55393_Aarupgaard grave 1654",2183,14)
{
  Outlier("cremation", 1);
};
R_Date("Aarupgaard grave 1834 comb", 2253,15)
{
  Outlier("cremation", 1);
};
R_Date("KIA-55395_Aarupgaard grave 1894",2211,14)
{
  Outlier("cremation", 1);
};
R_Date("KIA-55396_Aarupgaard grave 1993",2228,15)
{
  Outlier("cremation", 1);
};
R_Date("KIA-55397_Aarupgaard grave 2199",2244,17)
{
  Outlier("cremation", 1);
};
R_Date("KIA-55398_Aarupgaard grave 2293",2185,25)
{
  Outlier("cremation", 1);
};
R_Date("KIA-55399_Aarupgaard grave 2354",2237,18)
{
  Outlier("cremation", 1);
};
R_Date("KIA-55400_Aarupgaard grave 2366",2232,15)
{
  Outlier("cremation", 1);
};
R_Date("KIA-55401_Aarupgaard grave 2455",2240,25)
{
  Outlier("cremation", 1);
};
R_Date("KIA-55402_Aarupgaard grave 2498",2165,25)
{
  Outlier("cremation", 1);
};
R_Date("KIA-55403_Aarupgaard grave 2545",2194,18)
{
  Outlier("cremation", 1);
};
R_Date("KIA-55404_Aarupgaard grave 2593",2222,17)
```

```
{
  Outlier("cremation", 1);
};
};
Span("duration Aarupgaard urnfield");
KDE_Plot("Aarupgaard urnfield", );
Boundary("end Aarupgaard");
};
Page( );
Sequence("Søhale urnfield")
{
  Boundary("start Søhale");
  Phase("all burials")
  {
    R_Date("Søhale x47-III AAR-25258", 2421, 27)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Søhale x34-II RICH-26502", 2342, 26)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Søhale x33-II AAR-25256", 2353, 27)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Søhale x55-II AAR-25262", 2345, 27)
    {
      Outlier ("cremation", 1);
    };
    Phase("no circular ditch")
    {
      Combine("Søhale x76-II comb")
      {
        R_Date("KIA-53434", 2434, 21)
        {
          Outlier("cremation", 1);
        };
        R_Date("KIA-53940", 2429, 26)
        {
          Outlier("cremation", 1);
        };
      };
    };
    R_Date("Søhale x72-VII KIA-53432", 2382, 21)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Søhale x74-II KIA-53433", 2373, 21)
    {
      Outlier ("cremation", 1);
    };
  };
};
```

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```
};  
Phase("no entrances")  
{  
  R_Date("Søhale x35-II AAR-25257", 2469, 26)  
  {  
    Outlier ("cremation", 1);  
  };  
  Combine("Søhale x44-II comb")  
  {  
    R_Date("KIA-53939", 2468, 25)  
    {  
      Outlier("cremation", 1);  
    };  
    R_Date("GrM-16772", 2465, 20)  
    {  
      Outlier("cremation", 1);  
    };  
  };  
  R_Date("Søhale x49-III GrM-16773", 2425, 19)  
  {  
    Outlier ("cremation", 1);  
  };  
  R_Date("Søhale x50-II KIA-53431", 2438, 21)  
  {  
    Outlier ("cremation", 1);  
  };  
  R_Date("Søhale x51-IV AAR-25260", 2440, 27)  
  {  
    Outlier ("cremation", 1);  
  };  
  R_Date("Søhale x52-II AAR-25261", 2418, 31)  
  {  
    Outlier ("cremation", 1);  
  };  
  R_Date("Søhale x92-III KIA-53435", 2427, 21)  
  {  
    Outlier ("cremation", 1);  
  };  
};  
Phase("N-S entrances")  
{  
  R_Date("Søhale x26-III AAR-25252", 2277, 38)  
  {  
    Outlier ("cremation", 1);  
  };  
  R_Date("Søhale x48-II AAR-25259", 2460, 30)  
  {  
    Outlier ("cremation", 1);  
  };  
  R_Date("Søhale x21-III AAR-25250", 2258, 27)  
  {
```

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```
    Outlier ("cremation", 1);
  };
  R_Date("Søhale x93-II AAR-25265", 2387, 29)
  {
    Outlier ("cremation", 1);
  };
  R_Date("Søhale x65-V AAR-25263", 2314, 28)
  {
    Outlier ("cremation", 1);
  };
  R_Date("Søhale x18-III AAR-25249", 2185, 27)
  {
    Outlier ("cremation", 1);
  };
};
Phase("NNE-SSW entrances")
{
  R_Date("Søhale x22-III AAR-25251", 2211, 27)
  {
    Outlier ("cremation", 1);
  };
  R_Date("Søhale x32-II AAR-25255", 2403, 29)
  {
    Outlier ("cremation", 1);
  };
  R_Date("Søhale x14 AAR-25246", 2339, 26)
  {
    Outlier ("cremation", 1);
  };
  R_Date("Søhale x23-II RICH-26501", 2314, 24)
  {
    Outlier ("cremation", 1);
  };
  R_Date("Søhale x30-III AAR-25254", 2322, 28)
  {
    Outlier ("cremation", 1);
  };
  R_Date("Søhale x31-II RICH-26494", 2337, 27)
  {
    Outlier ("cremation", 1);
  };
  R_Date("Søhale x41-V GrM-16771", 2370, 20)
  {
    Outlier ("cremation", 1);
  };
  R_Date("Søhale x69-IV AAR-25264", 2303, 28)
  {
    Outlier ("cremation", 1);
  };
  R_Date("Søhale x10-II AAR-25243", 2212, 30)
  {
```

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```
    Outlier ("cremation", 1);
  };
  Combine("Søhale x12/x25A comb")
  {
    R_Date("AAR-25244", 2181, 38)
    {
      Outlier("cremation", 1);
    };
    R_Date("AAR-25245", 2232, 34)
    {
      Outlier("cremation", 1);
    };
    R_Date("Søhale x17 AAR-25248", 2262, 40)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Søhale x19-II KIA-53936", 2265, 26)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Søhale x27-I AAR-25253", 2237, 30)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Søhale x28-II RICH-26493", 2245, 27)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Søhale x37-III KIA-53937", 2220, 20)
    {
      Outlier ("cremation", 1);
    };
    Combine("Søhale x38-II comb")
    {
      R_Date("RICH-26495", 2254, 26)
      {
        Outlier("cremation", 1);
      };
      R_Date("KIA-53938", 2192, 27)
      {
        Outlier("cremation", 1);
      };
    };
    R_Date("Søhale x40-II GrM-16770", 2227, 19)
    {
      Outlier ("cremation", 1);
    };
  };
};
};
Span ("Duration Søhale urnfield cemetery");
```

```
KDE_Plot("Søhale urnfield", );  
Boundary("end Søhale");  
};  
};  
Span ("duration urnfield burial activity");  
KDE_Plot("urnfields", );  
Boundary("end urnfields");  
};  
};
```

Urnfield model B

```
Plot()  
{  
  MCMC_Sample()  
  {  
  };  
  Phase("Replicate measurements")  
  {  
    R_Combine("Aarre A281x484")  
    {  
      R_Date("GrM-14707 Aarre A281x484", 2320, 20);  
      R_Date("KIA-53100 Aarre A281x484", 2271, 20);  
    };  
    R_Combine("Aarre A95x368 twigs")  
    {  
      R_Date ("KIA-53984 A95x368 no.1", 2370, 25);  
      R_Date ("KIA-53985 A95x368 no.3", 2430, 26);  
    };  
    R_Combine("Aarre A86x340")  
    {  
      R_Date("KIA-53942_1 Aarre A86x340", 2379, 26);  
      R_Date("KIA-53942_2 Aarre A86x340", 2385, 25);  
    };  
    R_Combine("Aarre A117x762")  
    {  
      R_Date("GrM-14604 Aarre A117x762", 2445, 20);  
      R_Date("KIA-53098 Aarre A117x762", 2416, 20);  
    };  
    R_Combine("Aarre A155x281")  
    {  
      R_Date("KIA-53950_1 Aarre A155x281", 2359, 25);  
      R_Date("KIA-53950_2 Aarre A155x281", 2374, 25);  
    };  
    R_Combine("Aarre A198x338")  
    {  
      R_Date("KIA-53952_1 Aarre A198x338", 2323, 26);  
      R_Date("KIA-53952_2 Aarre A198x338", 2330, 35);  
    };  
    R_Combine("Aarre A278x783")  
    {
```

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```
R_Date("KIA-53955_1 Aarre A278x783", 2477, 26);
R_Date("KIA-53955_2 Aarre A278x783", 2450, 25);
};
R_Combine("Aarre A278x782 grass")
{
R_Date("KIA-53953 Aarre A278x782 no.1", 2400, 25);
R_Date("KIA-53954 Aarre A278x782 no.2", 2445, 25);
};
R_Combine("Aarre A394x785")
{
R_Date("GrM-14708 Aarre A394x785 CB", 2465, 18);
R_Date("KIA-53099 Aarre A394x785 CB", 2422, 20);
};
R_Combine("Aarupgaard U3869")
{
R_Date("GrM-15076 Aarupgaard U3869", 2540, 20);
R_Date("RICH-24152 Aarupgaard U3869", 2504, 26);
};
R_Combine("Aarupgaard U3330")
{
R_Date("GrM-14594 Aarupgaard U3330", 2535, 20);
R_Date("KIA-51901 Aarupgaard U3330", 2503, 27);
R_Date("KIA 52824 Aarupgaard U3330", 2471, 26);
};
R_Combine("Aarupgaard U83")
{
R_Date("GrM-15078 Aarupgaard U83", 2485, 30);
R_Date("KIA-52825 Aarupgaard U83", 2409, 27);
};
R_Combine("Aarupgaard U81")
{
R_Date("GrM-14589 Aarupgaard U81", 2425, 30);
R_Date("KIA-52819 Aarupgaard U81", 2379, 22);
};
R_Combine("Aarupgaard U280")
{
R_Date("GrM-14588 Aarupgaard U280", 2405, 20);
R_Date("KIA-52820 Aarupgaard U280", 2402, 22);
};
R_Combine("Aarupgaard U681")
{
R_Date("GrM-14705 Aarupgaard U681", 2310, 19);
R_Date("KIA-53094 Aarupgaard U681", 2305, 20);
};
R_Combine("Aarupgaard U766")
{
R_Date("RICH-25343 Aarupgaard U766", 2317, 26);
R_Date("GrM-14589 Aarupgaard U766", 2285, 20);
R_Date("KIA-52821 Aarupgaard U766", 2252, 23);
};
R_Combine("Aarupgaard U1186")
```

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```
{
  R_Date("GrM-14597 Aarupgaard U1186", 2465, 20);
  R_Date("KIA-53096 Aarupgaard U1186", 2408, 20);
};
R_Combine("Aarupgaard U51")
{
  R_Date("KIA-52339 Aarupgaard U51", 2448, 26);
  R_Date("GrM-15072 Aarupgaard U51", 2445, 20);
};
R_Combine("Aarupgaard U382")
{
  R_Date("GrM-14596 Aarupgaard U382", 2280, 20);
  R_Date("KIA-52827 Aarupgaard U382", 2229, 25);
};
R_Combine("Aarupgaard U1001")
{
  R_Date("KIA-53095 Aarupgaard U1001", 2253, 21);
  R_Date("GrM-14599 Aarupgaard U1001", 2235, 20);
};
R_Combine("Aarupgaard U1076")
{
  R_Date("GrM-14592 Aarupgaard U1076", 2260, 20);
  R_Date("KIA-52822 Aarupgaard U1076", 2199, 29);
  R_Date("RICH-25340 Aarupgaard U1076", 2198, 27);
};
R_Combine("Aarupgaard U1363")
{
  R_Date("GrM-14602 Aarupgaard U1363", 2225, 20);
  R_Date("KIA-52828 Aarupgaard U1363", 2195, 24);
};
R_Combine("Aarupgaard U1791")
{
  R_Date("GrM-15074 Aarupgaard U1791", 2230, 25);
  R_Date("KIA-52341 Aarupgaard U1791", 2167, 25);
};
R_Combine("Aarupgaard U1847")
{
  R_Date("GrM-15075 Aarupgaard U1847", 2255, 20);
  R_Date("KIA-52342 Aarupgaard U1847", 2228, 25);
};
R_Combine("Aarupgaard U2262")
{
  R_Date("GrM-14593 Aarupgaard U2262", 2255, 25);
  R_Date("KIA-52823 Aarupgaard U2262", 2214, 28);
};
R_Combine("Søhale x76-II")
{
  R_Date("KIA-53434 Søhale x76-II", 2434, 21);
  R_Date("KIA-53940 Søhale x76-II", 2429, 26);
};
R_Combine("Søhale x44-II")
```

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```
{
  R_Date("KIA-53939 Søhale x44-II", 2468, 25);
  R_Date("GrM-16772 Søhale x44-II", 2465, 20);
};
R_Combine("Søhale x12/x25A")
{
  R_Date("AAR-25244 Søhale x12/x25A", 2181, 38);
  R_Date("AAR-25245 Søhale x12/x25A", 2232, 34);
};
R_Combine("Søhale x38-II")
{
  R_Date("RICH-26495 Søhale x38-II", 2254, 26);
  R_Date("KIA-53938 Søhale x38-II", 2192, 27);
};
};
Outlier_Model("cremation", Exp(0.9,-10,-0.1), U(1,3),"t");
Sequence("BA per.V-VI")
{
  Boundary("start BA per.V");
  Phase("BA per.V")
  {
    R_Date("AAR-8786(PB4) Ø.Herup CB", 2722, 25)
    {
      Outlier("cremation", 1);
    };
    R_Date("AAR-8787 (PB5) Sevel Kalkværk CB", 2650, 25)
    {
      Outlier("cremation", 1);
    };
    R_Date("AAR-9520 (PB24) Jersild CB", 2683, 36)
    {
      Outlier("cremation", 1);
    };
    Combine("Gl. Brydegård")
    {
      R_Date("AAR-9570 (PB32) Gl. Brydegård pitch", 2706, 35);
      R_Date("AAR-9576 (PB38) Gl. Brydegård CB", 2714, 34)
      {
        Outlier("cremation", 1);
      };
    };
    R_Date("AAR-9575 (PB37) Lusehøj GX CB", 2611, 33)
    {
      Outlier("cremation", 1);
    };
  };
  Boundary("Transition V/VI");
  Phase("BA VI")
  {
    R_Date("AAR-9571 (PB33) Lerbjerg I CB", 2486, 25)
    {
```

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```
Outlier("cremation", 1);
};
R_Date("AAR-9568 (PB30) Lerbjerg I pitch", 2851, 24)
{
  Outlier();
};
Combine("Lerbjerg II")
{
  R_Date("AAR-9569 (PB31) Lerbjerg II pitch", 2459, 41);
  R_Date("AAR-9573 (PB35) Lerbjerg II CB", 2502, 39)
  {
    Outlier("cremation", 1);
  };
};
};
Boundary("end BA per.VI");
};
Page( );
Sequence("urnfields")
{
  After("Bronze Age Period VI")
  {
    Date("=end BA per.VI");
  };
  Boundary("start urnfields");
  Phase("urnfields")
  {
    Sequence ("Aarre urnfield")
    {
      Boundary("start Aarre");
      Phase ("Aarre urnfield cemetery")
      {
        R_Date("RICH-25356 Aarre A89x311", 2464, 27)
        {
          Outlier("cremation", 1);
        };
        Date("=Aarre A281x484")
        {
          Outlier("cremation", 1);
        };
        Sequence ("A86")
        {
          After ("older CC from A86")
          {
            R_Date ("KIA-53941 Aarre A86x339 ", 2463, 25);
          };
          Phase("A86")
          {
            Date("=Aarre A86x340")
            {
              Outlier ("cremation", 1);
            }
          }
        }
      }
    }
  }
}
```

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```
};
};
};
Combine("A95")
{
  R_Date ("RICH-25342 Aarre A95x369 CB", 2428, 27)
  {
    Outlier ("cremation", 1);
  };
  Date ("=Aarre A95x368 twigs");
};
Sequence ("A99")
{
  After ("older CC from A99")
  {
    R_Date ("RICH-25071 Aarre A99x65 no.2", 2269, 29);
    R_Date ("RICH-25066 Aarre A99x346 no.27", 2251, 30);
    R_Date ("RICH-25067 Aarre A99x65 no.3", 3115, 31);
  };
  Phase("A99")
  {
    R_Date ("GrM-16774 Aarre A99x345", 2255, 20)
    {
      Outlier ("cremation", 1);
    };
    R_Date ("RICH-25069 Aarre A99x346 no.1", 2085, 29)
    {
      Outlier();
    };
  };
};
Sequence ("A117")
{
  After ("older CC from A117")
  {
    R_Date ("KIA-53943 Aarre A117x769", 2449, 25);
    R_Date ("KIA-53944 A117x774", 2495, 24);
  };
  Phase("A117")
  {
    Date("=Aarre A117x762")
    {
      Outlier ("cremation", 1);
    };
  };
};
Sequence ("A130")
{
  After ("older CC from A130")
  {
    R_Date ("KIA-53945 A130x82 no.1", 2585, 25);
```

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```
};  
Combine("A130")  
{  
  R_Date ("KIA-53947 Aarre A130x217", 2253, 18)  
  {  
    Outlier ("cremation", 1);  
  };  
  R_Date ("KIA-53946 A130x82 no.2", 2156, 24);  
};  
Sequence ("A155")  
{  
  After ("older CC from A155")  
  {  
    R_Date ("KIA-53948 A155x127 no.1", 2494, 24);  
    R_Date ("KIA-53949 A155x127 no.2", 2466, 24);  
  };  
  Phase("A155")  
  {  
    Date("=Aarre A155x281")  
    {  
      Outlier ("cremation", 1);  
    };  
  };  
};  
Sequence ("A198")  
{  
  After ("older CC from A198")  
  {  
    R_Date ("KIA-53951 A198x338", 2967,24);  
  };  
  Phase("A198")  
  {  
    Date("=Aarre A198x338")  
    {  
      Outlier ("cremation", 1);  
    };  
  };  
};  
Combine("A278")  
{  
  Date("=Aarre A278x783")  
  {  
    Outlier ("cremation", 1);  
  };  
  Date("=Aarre A278x782 grass");  
};  
Sequence ("A393")  
{  
  After ("older CC from A393")  
  {
```

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```
R_Date ("A393 RICH-25068", 2901, 32);
R_Date ("A393 RICH-25070", 2914, 32);
R_Date ("A393 KIA-52411", 3134, 25);
R_Date ("A393 KIA-52412", 3150, 27);
R_Date ("A393 KIA-52413", 2611, 27);
};
R_Date ("Aarre A393 RICH-25341", 2480, 27)
{
  Outlier ("cremation", 1);
};
};
Sequence ("A394")
{
  After ("older CC from A394")
  {
    R_Date ("A394 KIA-52414", 2778, 27);
    R_Date ("A394 KIA-52415", 2843, 26);
    R_Date ("A394 KIA-52416", 2772, 26);
    R_Date ("A394 KIA-52417", 2719, 27);
    R_Date ("A394 KIA-53983", 3029, 24);
  };
  Date("=Aarre A394x785")
  {
    Outlier ("cremation", 1);
  };
};
};
Span("duration Aarre urnfield");
KDE_Plot("Aarre urnfield",);
Boundary("end Aarre");
};
Page( );
Sequence("Aarupgaard urnfield - entrance model")
{
  Boundary("start Aarupgaard");
  Phase("founding graves")
  {
    Date("=Aarupgaard U3869")
    {
      Outlier ("cremation", 1);
    };
    Date("=Aarupgaard U3330")
    {
      Outlier ("cremation", 1);
    };
    R_Date("RICH-25354 Aarupgaard U3341", 2477, 27)
    {
      Outlier ("cremation", 1);
    };
  };
  Phase("multiple pathways")
```

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```
{
  Date("=Aarupgaard U83")
  {
    Outlier ("cremation", 1);
  };
  R_Date("Aarupgaard U34", 2346, 28)
  {
    Outlier ("cremation", 1);
  };
  R_Date("Aarupgaard U36", 2424, 30)
  {
    Outlier ("cremation", 1);
  };
  Date("=Aarupgaard U81")
  {
    Outlier ("cremation", 1);
  };
  R_Date("Aarupgaard U123", 2277, 26)
  {
    Outlier ("cremation", 1);
  };
  Phase("U230")
  {
    R_Date("GrM-14704 Aarupgaard U230", 2546, 19)
    {
      Outlier ();
    };
    R_Date("KIA-52826 Aarupgaard U230", 2362, 25)
    {
      Outlier ("cremation", 1);
    };
  };
  Date("=Aarupgaard U280")
  {
    Outlier ("cremation", 1);
  };
  R_Date("Aarupgaard U293", 2378, 23)
  {
    Outlier ("cremation", 1);
  };
  R_Date("Aarupgaard U500", 2278, 23)
  {
    Outlier ("cremation", 1);
  };
  Date("=Aarupgaard U681")
  {
    Outlier ("cremation", 1);
  };
  R_Date("Aarupgaard U752", 2317, 26)
  {
    Outlier ("cremation", 1);
  };
}
```

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```
};
Date("=Aarupgaard U766")
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard U797", 2255, 28)
{
  Outlier ("cremation", 1);
};
Date("=Aarupgaard U1186")
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard U1279", 2467, 26)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard U3452", 2525, 25)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard U3778", 2452, 25)
{
  Outlier ("cremation", 1);
};
Date("=Aarupgaard U51")
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard U2710", 2411, 27)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard U3822", 2433, 26)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard U1232", 2443, 27)
{
  Outlier ("cremation", 1);
};
};
Boundary("transition from multiple to 2 pathways")
{
  Start("Start of transition from multiple to 2 pathways");
  Transition("Period of transition from multiple to 2 pathways");
  End("End of transition from multiple to 2 pathways");
};
Phase("2 pathways")
{
  R_Date("Aarupgaard U183", 2243, 23)
```

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```
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard U346", 2246, 24)
{
  Outlier ("cremation", 1);
};
Date("=Aarupgaard U382")
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard U858", 2258, 23)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard U928", 2297, 25)
{
  Outlier ("cremation", 1);
};
Date("=Aarupgaard U1001")
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard U1016", 2220, 25)
{
  Outlier ("cremation", 1);
};
Date("=Aarupgaard U1076")
{
  Outlier ("cremation", 1);
};
Date("=Aarupgaard U1363")
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard U1382", 2201, 27)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard U1422", 2186, 26)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard U1436", 2252, 28)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard U1617", 2163, 28)
{
  Outlier ("cremation", 1);
};
```

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```
R_Date("Aarupgaard U1678", 2243, 25)
{
  Outlier ("cremation", 1);
};
Date("=Aarupgaard U1791")
{
  Outlier ("cremation", 1);
};
Date("=Aarupgaard U1847")
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard U1970", 2246, 23)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard U1997", 2146, 27)
{
  Outlier ("cremation", 1);
};
Date("=Aarupgaard U2262")
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard U2541", 2216, 26)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard U2550", 2291, 26)
{
  Outlier ("cremation", 1);
};
R_Date("KIA-55388_Aarupgaard U427",2241,17)
{
  Outlier("cremation", 1);
};
R_Date("KIA-55389_Aarupgaard U867",2219,12)
{
  Outlier("cremation", 1);
};
R_Date("KIA-55390_Aarupgaard U871",2239,17)
{
  Outlier("cremation", 1);
};
R_Date("KIA-55391_Aarupgaard U884",2211,16)
{
  Outlier("cremation", 1);
};
R_Date("KIA-55392_Aarupgaard U1018",2242,17)
{
  Outlier("cremation", 1);
};
```

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```
};  
R_Date("KIA-55393_Aarupgaard U1654",2183,14)  
{  
  Outlier("cremation", 1);  
};  
Phase("U1834")  
{  
  R_Date("RICH-24144 Aarupgaard U1834", 2322, 25)  
  {  
    Outlier();  
  };  
  R_Date("KIA-55394 Aarupgaard U1834", 2216, 18)  
  {  
    Outlier("cremation", 1);  
  };  
};  
R_Date("KIA-55395_Aarupgaard U1894",2211,14)  
{  
  Outlier("cremation", 1);  
};  
R_Date("KIA-55396_Aarupgaard U1993",2228,15)  
{  
  Outlier("cremation", 1);  
};  
R_Date("KIA-55397_Aarupgaard U2199",2244,17)  
{  
  Outlier("cremation", 1);  
};  
R_Date("KIA-55398_Aarupgaard U2293",2185,25)  
{  
  Outlier("cremation", 1);  
};  
R_Date("KIA-55399_Aarupgaard U2354",2237,18)  
{  
  Outlier("cremation", 1);  
};  
R_Date("KIA-55400_Aarupgaard U2366",2232,15)  
{  
  Outlier("cremation", 1);  
};  
R_Date("KIA-55401_Aarupgaard U2455",2240,25)  
{  
  Outlier("cremation", 1);  
};  
R_Date("KIA-55402_Aarupgaard U2498",2165,25)  
{  
  Outlier("cremation", 1);  
};  
R_Date("KIA-55403_Aarupgaard U2545",2194,18)  
{  
  Outlier("cremation", 1);
```

```
};
R_Date("KIA-55404_Aarupgaard U2593",2222,17)
{
  Outlier("cremation", 1);
};
};
Span("duration Aarupgaard urnfield");
KDE_Plot("Aarupgaard urnfield", );
Boundary("end Aarupgaard");
};
Page( );
Sequence("Søhale urnfield")
{
  Boundary("start Søhale");
  Phase("all burials")
  {
    R_Date("AAR-25258 Søhale x47-III", 2421, 27)
    {
      Outlier ("cremation", 1);
    };
    R_Date("RICH-26502 Søhale x34-II", 2342, 26)
    {
      Outlier ("cremation", 1);
    };
    R_Date("AAR-25256 Søhale x33-II", 2353, 27)
    {
      Outlier ("cremation", 1);
    };
    R_Date("AAR-25262 Søhale x55-II", 2345, 27)
    {
      Outlier ("cremation", 1);
    };
    Phase("no circular ditch")
    {
      Date("=Søhale x76-II")
      {
        Outlier("cremation", 1);
      };
    };
    R_Date("KIA-53432 Søhale x72-VII", 2382, 21)
    {
      Outlier ("cremation", 1);
    };
    R_Date("KIA-53433 Søhale x74-II", 2373, 21)
    {
      Outlier ("cremation", 1);
    };
    };
    Sequence("no entrances")
    {
      Boundary("start no entrances");
      Phase("no entrances")
```

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```
{
  R_Date("AAR-25257 Søhale x35-II", 2469, 26)
  {
    Outlier ("cremation", 1);
  };
  Date("=Søhale x44-II")
  {
    Outlier("cremation", 1);
  };
  R_Date("GrM-16773 Søhale x49-III", 2425, 19)
  {
    Outlier ("cremation", 1);
  };
  R_Date("KIA-53431 Søhale x50-II", 2438, 21)
  {
    Outlier ("cremation", 1);
  };
  R_Date("AAR-25260 Søhale x51-IV", 2440, 27)
  {
    Outlier ("cremation", 1);
  };
  R_Date("AAR-25261 Søhale x52-II", 2418, 31)
  {
    Outlier ("cremation", 1);
  };
  R_Date("KIA-53435 Søhale x92-III", 2427, 21)
  {
    Outlier ("cremation", 1);
  };
};
Boundary("end no entrances");
};
Sequence("N-S entrances")
{
  Boundary("start N-S entrances");
  Phase("N-S entrances")
  {
    R_Date("AAR-25252 Søhale x26-III", 2277, 38)
    {
      Outlier ("cremation", 1);
    };
    R_Date("AAR-25259 Søhale x48-II", 2460, 30)
    {
      Outlier ("cremation", 1);
    };
    R_Date("AAR-25250 Søhale x21-III", 2258, 27)
    {
      Outlier ("cremation", 1);
    };
    R_Date("AAR-25265 Søhale x93-II", 2387, 29)
    {
```

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```
    Outlier ("cremation", 1);
  };
  R_Date("AAR-25263 Søhale x65-V", 2314, 28)
  {
    Outlier ("cremation", 1);
  };
  R_Date("AAR-25249 Søhale x18-III", 2185, 27)
  {
    Outlier ("cremation", 1);
  };
};
Boundary("end N-S entrances");
};
Sequence("NNE-SSW entrances")
{
  Boundary("start NNE-SSW entrances");
  Phase("NNE-SSW entrances")
  {
    R_Date("AAR-25251 Søhale x22-III", 2211, 27)
    {
      Outlier ("cremation", 1);
    };
    R_Date("AAR-25255 Søhale x32-II", 2403, 29)
    {
      Outlier ("cremation", 1);
    };
    R_Date("AAR-25246 Søhale x14", 2339, 26)
    {
      Outlier ("cremation", 1);
    };
    R_Date("RICH-26501 Søhale x23-II", 2314, 24)
    {
      Outlier ("cremation", 1);
    };
    R_Date("AAR-25254 Søhale x30-III", 2322, 28)
    {
      Outlier ("cremation", 1);
    };
    R_Date("RICH-26494 Søhale x31-II", 2337, 27)
    {
      Outlier ("cremation", 1);
    };
    R_Date("GrM-16771 Søhale x41-V", 2370, 20)
    {
      Outlier ("cremation", 1);
    };
    R_Date("AAR-25264 Søhale x69-IV", 2303, 28)
    {
      Outlier ("cremation", 1);
    };
    R_Date("AAR-25243 Søhale x10-II", 2212, 30)
```

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```
{
  Outlier ("cremation", 1);
};
Date("=Søhale x12/x25A")
{
  Outlier("cremation", 1);
};
R_Date("AAR-25248 Søhale x17", 2262, 40)
{
  Outlier ("cremation", 1);
};
R_Date("KIA-53936 Søhale x19-II", 2265, 26)
{
  Outlier ("cremation", 1);
};
R_Date("AAR-25253 Søhale x27-I", 2237, 30)
{
  Outlier ("cremation", 1);
};
R_Date("RICH-26493 Søhale x28-II", 2245, 27)
{
  Outlier ("cremation", 1);
};
R_Date("KIA-53937 Søhale x37-III", 2220, 20)
{
  Outlier ("cremation", 1);
};
Date("=Søhale x38-II")
{
  Outlier("cremation", 1);
};
R_Date("GrM-16770 Søhale x40-II", 2227, 19)
{
  Outlier ("cremation", 1);
};
};
Boundary("end NNE-SSW entrances");
};
};
Span ("Duration Søhale urnfield cemetery");
KDE_Plot("Søhale urnfield", );
Boundary("end Søhale");
};
};
KDE_Plot("urnfield burial activity", );
Span("duration of urnfields");
Boundary("end urnfields");
};
};
```

Alternative horizontal model of Aarupgaard urnfield

To run the alternative chronological model, replace the Sequence "Aarupgaard urnfield" in urnfield model B with the model code given below.

```
Sequence("Aarupgaard urnfield")
{
  Boundary("start Aarupgaard");
  Phase("founding graves")
  {
    R_Date("Aarupgaard grave 3869 CB", 2507, 14)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Aarupgaard grave 3330 CB comb", 2509, 14)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Aarupgaard grave 3340 CB", 2477, 27)
    {
      Outlier ("cremation", 1);
    };
  };
  Phase("burial groups M1-M2")
  {
    Phase("burial group M1")
    {
      Sequence("M1-CC1")
      {
        Boundary("start M1-CC1");
        Phase("M1-CC1")
        {
          R_Date("Aarupgaard grave 3452 CB", 2525, 25)
          {
            Outlier ("cremation", 1);
          };
          R_Date("Aarupgaard grave 2710 CB", 2411, 27)
          {
            Outlier ("cremation", 1);
          };
          R_Date("Aarupgaard grave 1279 CB", 2467, 26)
          {
            Outlier ("cremation", 1);
          };
          R_Date("Aarupgaard grave 3778 CB", 2452, 25)
          {
            Outlier ("cremation", 1);
          };
          R_Date("Aarupgaard grave 81 CB comb", 2395, 18)
          {
            Outlier ("cremation", 1);
          };
        }
      }
    }
  }
}
```

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```
R_Date("Aarupgaard grave 1232 CB", 2443, 27)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 51 CB comb", 2446, 16)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 83 CB comb", 2443, 21)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 1186 CB comb", 2437, 15)
{
  Outlier ("cremation", 1);
};
Sum("M1-CC1");
};
Boundary("end M1-CC1");
};
Sequence("M1-CC2")
{
  Boundary("start M1-CC2");
  Phase("M1-CC2")
  {
    R_Date("Aarupgaard grave 123 CB", 2277, 26)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Aarupgaard grave 280 CB comb", 2404, 15)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Aarupgaard grave 36 CB", 2424, 30)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Aarupgaard grave 34 CB", 2346, 28)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Aarupgaard grave 230 CB", 2362, 25)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Aarupgaard grave 293 CB", 2378, 23)
    {
      Outlier ("cremation", 1);
    };
    Sum("M1-CC2");
  };
};
```

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```
Boundary("end M1-CC2");
};
Sequence("M1-CC3")
{
Boundary("start M1-CC3");
Phase("M1-CC3")
{
R_Date("Aarupgaard grave 500 CB", 2278, 23)
{
Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 681 CB comb", 2308, 14)
{
Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 752 CB", 2317, 26)
{
Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 766 CB comb", 2271, 16)
{
Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 928 CB", 2297, 25)
{
Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 797 CB", 2255, 28)
{
Outlier ("cremation", 1);
};
Sum("M1-CC3");
};
Boundary("end M1-CC3");
};
Sequence("M1-CC4")
{
Boundary("start M1-CC4");
Phase("M1-CC4")
{
R_Date("Aarupgaard grave 1363 CB comb", 2213, 16)
{
Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 1382 CB", 2201, 27)
{
Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 1076 CB comb", 2229, 15)
{
Outlier ("cremation", 1);
};
};
};
```

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```
};
R_Date("Aarupgaard grave 1422 CB", 2186, 26)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 1436 CB", 2252, 28)
{
  Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 1001 CB comb", 2244, 15)
{
  Outlier ("cremation", 1);
};
Sum("M1-CC4");
};
Boundary("end M1-CC4");
};
Sequence("M1-CC5")
{
  Boundary("start M1-CC5");
  Phase("M1-CC5")
  {
    R_Date("Aarupgaard grave 1617 CB", 2163, 28)
    {
      Outlier ("cremation", 1);
    };
    R_Date("KIA-55393_Aarupgaard grave 1654",2183,14)
    {
      Outlier("cremation", 1);
    };
    R_Date("Aarupgaard grave 1678 CB", 2243, 25)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Aarupgaard grave 1791 CB comb", 2199, 18)
    {
      Outlier ("cremation", 1);
    };
    Combine("Aarupgaard grave 1834")
    {
      R_Date("KIA-55394_Aarupgaard grave 1834",2216,18)
      {
        Outlier("cremation", 1);
      };
      R_Date("RICH-24144_Aarupgaard grave 1834", 2322, 25)
      {
        Outlier ();
      };
    };
    R_Date("Aarupgaard grave 1847 CB comb", 2244, 16)
    {
```

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```
    Outlier ("cremation", 1);
};
R_Date("KIA-55395_Aarupgaard grave 1894",2211,14)
{
    Outlier("cremation", 1);
};
R_Date("Aarupgaard grave 1970 CB", 2246, 23)
{
    Outlier ("cremation", 1);
};
R_Date("KIA-55396_Aarupgaard grave 1993",2228,15)
{
    Outlier("cremation", 1);
};
R_Date("Aarupgaard grave 1997 CB", 2146, 27)
{
    Outlier ("cremation", 1);
};
Sum("M1-CC5");
};
Boundary("end M1-CC5");
};
Sequence("M1-CC6")
{
    Boundary("start M1-CC6");
    Phase("M1-CC6")
    {
        R_Date("KIA-55397_Aarupgaard grave 2199",2244,17)
        {
            Outlier("cremation", 1);
};
R_Date("Aarupgaard grave 2541 CB", 2216, 26)
{
    Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 2262 CB comb", 2237, 19)
{
    Outlier ("cremation", 1);
};
R_Date("Aarupgaard grave 2550 CB", 2291, 26)
{
    Outlier ("cremation", 1);
};
R_Date("KIA-55398_Aarupgaard grave 2293",2185,25)
{
    Outlier("cremation", 1);
};
R_Date("KIA-55399_Aarupgaard grave 2354",2237,18)
{
    Outlier("cremation", 1);
};
};
```

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```
R_Date("KIA-55400_Aarupgaard grave 2366",2232,15)
{
  Outlier("cremation", 1);
};
R_Date("KIA-55401_Aarupgaard grave 2455",2240,25)
{
  Outlier("cremation", 1);
};
R_Date("KIA-55402_Aarupgaard grave 2498",2165,25)
{
  Outlier("cremation", 1);
};
R_Date("KIA-55403_Aarupgaard grave 2545",2194,18)
{
  Outlier("cremation", 1);
};
R_Date("KIA-55404_Aarupgaard grave 2593",2222,17)
{
  Outlier("cremation", 1);
};
Sum("M1-CC6");
};
Boundary("end M1-CC6");
};
Phase("burial group M2")
{
  Sequence("M2-CC1-3")
  {
    Boundary("start M2-CC1-3");
    Phase("M2-CC1-3")
    {
      R_Date("Aarupgaard grave 3822 CB", 2433, 26)
      {
        Outlier ("cremation", 1);
      };
      R_Date("Aarupgaard grave 346 CB", 2246, 24)
      {
        Outlier ("cremation", 1);
      };
      R_Date("Aarupgaard grave 183 CB", 2243, 23)
      {
        Outlier ("cremation", 1);
      };
      R_Date("Aarupgaard grave 382 CB comb", 2260, 16)
      {
        Outlier ("cremation", 1);
      };
      R_Date("KIA-55388_Aarupgaard grave 427",2241,17)
      {
        Outlier("cremation", 1);
      };
    }
  }
}
```

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```
};
Sum("M2-CC1-3");
};
Boundary("end M2-CC1-3");
};
Sequence("M2-CC4")
{
Boundary("start M2-CC4");
Phase("M2-CC4")
{
R_Date("Aarupgaard grave 858 CB", 2258, 23)
{
Outlier("cremation", 1);
};
R_Date("KIA-55389_Aarupgaard grave 867",2219,12)
{
Outlier("cremation", 1);
};
R_Date("KIA-55390_Aarupgaard grave 871",2239,17)
{
Outlier("cremation", 1);
};
R_Date("KIA-55391_Aarupgaard grave 884",2211,16)
{
Outlier("cremation", 1);
};
R_Date("Aarupgaard grave 1016 CB", 2220, 25)
{
Outlier("cremation", 1);
};
R_Date("KIA-55392_Aarupgaard grave 1018",2242,17)
{
Outlier("cremation", 1);
};
Sum("M2-CC4");
};
Boundary("end M2-CC4");
};
};
Span("duration Aarupgaard urnfield");
KDE_Plot("Aarupgaard urnfield", );
Boundary("end Aarupgaard");
};
Phase("Aarupgaard - horizontal stratigraphy")
{
Phase("M1 - order of spatial phases")
{
Sequence("M1 - start of phases")
{
Date("=start M1-CC1");
```

```
Date("=start M1-CC2");
Date("=start M1-CC3");
Date("=start M1-CC4");
Date("=start M1-CC5");
Date("=start M1-CC6");
};
};
Phase("M2 - order of spatial phases")
{
Sequence("M2 - start of phases")
{
Date("=start M2-CC1-3");
Date("=start M2-CC4");
};
};
};
```

Alternative model of Søhale urnfield based on the orientation of interruptions of circular ditches

To run the alternative chronological model, replace the Sequence "Søhale urnfield" in urnfield model B with the model code given below.

```
Sequence("Søhale urnfield")
{
Boundary("start Søhale");
Phase("all burials")
{
R_Date("Søhale x47-III AAR-25258", 2421, 27)
{
Outlier ("cremation", 1);
};
R_Date("Søhale x34-II RICH-26502", 2342, 26)
{
Outlier ("cremation", 1);
};
R_Date("Søhale x33-II AAR-25256", 2353, 27)
{
Outlier ("cremation", 1);
};
R_Date("Søhale x55-II AAR-25262", 2345, 27)
{
Outlier ("cremation", 1);
};
Phase("no circular ditch")
{
Combine("Søhale x76-II comb")
{
R_Date("KIA-53434", 2434, 21)
{
Outlier("cremation", 1);
};
};
};
```

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```
R_Date("KIA-53940", 2429, 26)
{
  Outlier("cremation", 1);
};
};
R_Date("Søhale x72-VII KIA-53432", 2382, 21)
{
  Outlier ("cremation", 1);
};
R_Date("Søhale x74-II KIA-53433", 2373, 21)
{
  Outlier ("cremation", 1);
};
};
Sequence("no entrances")
{
  Boundary("start no entrances");
  Phase("no entrances")
  {
    R_Date("Søhale x35-II AAR-25257", 2469, 26)
    {
      Outlier ("cremation", 1);
    };
    Combine("Søhale x44-II comb")
    {
      R_Date("KIA-53939", 2468, 25)
      {
        Outlier("cremation", 1);
      };
      R_Date("GrM-16772", 2465, 20)
      {
        Outlier("cremation", 1);
      };
    };
    R_Date("Søhale x49-III GrM-16773", 2425, 19)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Søhale x50-II KIA-53431", 2438, 21)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Søhale x51-IV AAR-25260", 2440, 27)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Søhale x52-II AAR-25261", 2418, 31)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Søhale x92-III KIA-53435", 2427, 21)
```

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```
{
  Outlier ("cremation", 1);
};
};
Boundary("end no entrances");
};
Sequence("N-S entrances")
{
  Boundary("start N-S entrances");
  Phase("N-S entrances")
  {
    R_Date("Søhale x26-III AAR-25252", 2277, 38)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Søhale x48-II AAR-25259", 2460, 30)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Søhale x21-III AAR-25250", 2258, 27)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Søhale x93-II AAR-25265", 2387, 29)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Søhale x65-V AAR-25263", 2314, 28)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Søhale x18-III AAR-25249", 2185, 27)
    {
      Outlier ("cremation", 1);
    };
    };
  };
  Boundary("end N-S entrances");
};
Sequence("NNE-SSW entrances")
{
  Boundary("start NNE-SSW entrances");
  Phase("NNE-SSW entrances")
  {
    R_Date("Søhale x22-III AAR-25251", 2211, 27)
    {
      Outlier ("cremation", 1);
    };
    R_Date("Søhale x32-II AAR-25255", 2403, 29)
    {
      Outlier ("cremation", 1);
    };
  };
};
```

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```
R_Date("Søhale x14 AAR-25246", 2339, 26)
{
  Outlier ("cremation", 1);
};
R_Date("Søhale x23-II RICH-26501", 2314, 24)
{
  Outlier ("cremation", 1);
};
R_Date("Søhale x30-III AAR-25254", 2322, 28)
{
  Outlier ("cremation", 1);
};
R_Date("Søhale x31-II RICH-26494", 2337, 27)
{
  Outlier ("cremation", 1);
};
R_Date("Søhale x41-V GrM-16771", 2370, 20)
{
  Outlier ("cremation", 1);
};
R_Date("Søhale x69-IV AAR-25264", 2303, 28)
{
  Outlier ("cremation", 1);
};
R_Date("Søhale x10-II AAR-25243", 2212, 30)
{
  Outlier ("cremation", 1);
};
Combine("Søhale x12/x25A comb")
{
  R_Date("AAR-25244", 2181, 38)
  {
    Outlier("cremation", 1);
  };
  R_Date("AAR-25245", 2232, 34)
  {
    Outlier("cremation", 1);
  };
};
R_Date("Søhale x17 AAR-25248", 2262, 40)
{
  Outlier ("cremation", 1);
};
R_Date("Søhale x19-II KIA-53936", 2265, 26)
{
  Outlier ("cremation", 1);
};
R_Date("Søhale x27-I AAR-25253", 2237, 30)
{
  Outlier ("cremation", 1);
};
```

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```
R_Date("Søhale x28-II RICH-26493", 2245, 27)
{
  Outlier ("cremation", 1);
};
R_Date("Søhale x37-III KIA-53937", 2220, 20)
{
  Outlier ("cremation", 1);
};
Combine("Søhale x38-II comb")
{
  R_Date("RICH-26495", 2254, 26)
  {
    Outlier("cremation", 1);
  };
  R_Date("KIA-53938", 2192, 27)
  {
    Outlier("cremation", 1);
  };
};
R_Date("Søhale x40-II GrM-16770", 2227, 19)
{
  Outlier ("cremation", 1);
};
};
Boundary("end NNE-SSW entrances");
};
Span ("Duration Søhale urnfield cemetery");
KDE_Plot("Søhale urnfield", );
Boundary("end Søhale");
};
```

Currency model

Run the urnfield model B first and save the posterior estimated burial dates using the exact same names as provided below in Phase("burial dates").

```
Plot()
{
  MCMC_Sample()
  {
  };
  Phase("burial dates")
  {
    Phase("Aarupgaard burials")
    {
      Prior("Aarupgaard U34_burial", "Aarupgaard_U34.prior");
      Prior("Aarupgaard U36_burial", "Aarupgaard_U36.prior");
      Prior("Aarupgaard U51_burial", "Aarupgaard_U51.prior");
      Prior("Aarupgaard U81_burial", "Aarupgaard_U81.prior");
      Prior("Aarupgaard U83_burial", "Aarupgaard_U83.prior");
    }
  }
}
```

Prior("Aarupgaard U123_burial", "Aarupgaard_U123.prior");
Prior("Aarupgaard U183_burial", "Aarupgaard_U183.prior");
Prior("Aarupgaard U230_burial", "Aarupgaard_U230.prior");
Prior("Aarupgaard U280_burial", "Aarupgaard_U280.prior");
Prior("Aarupgaard U293_burial", "Aarupgaard_U293.prior");
Prior("Aarupgaard U346_burial", "Aarupgaard_U346.prior");
Prior("Aarupgaard U382_burial", "Aarupgaard_U382.prior");
Prior("Aarupgaard U427_burial", "Aarupgaard_U427.prior");
Prior("Aarupgaard U500_burial", "Aarupgaard_U500.prior");
Prior("Aarupgaard U681_burial", "Aarupgaard_U681.prior");
Prior("Aarupgaard U752_burial", "Aarupgaard_U752.prior");
Prior("Aarupgaard U766_burial", "Aarupgaard_U766.prior");
Prior("Aarupgaard U797_burial", "Aarupgaard_U797.prior");
Prior("Aarupgaard U858_burial", "Aarupgaard_U858.prior");
Prior("Aarupgaard U867_burial", "Aarupgaard_U867.prior");
Prior("Aarupgaard U871_burial", "Aarupgaard_U871.prior");
Prior("Aarupgaard U884_burial", "Aarupgaard_U884.prior");
Prior("Aarupgaard U928_burial", "Aarupgaard_U928.prior");
Prior("Aarupgaard U1001_burial", "Aarupgaard_U1001.prior");
Prior("Aarupgaard U1016_burial", "Aarupgaard_U1016.prior");
Prior("Aarupgaard U1018_burial", "Aarupgaard_U1018.prior");
Prior("Aarupgaard U1076_burial", "Aarupgaard_U1076.prior");
Prior("Aarupgaard U1186_burial", "Aarupgaard_U1186.prior");
Prior("Aarupgaard U1232_burial", "Aarupgaard_U1232.prior");
Prior("Aarupgaard U1279_burial", "Aarupgaard_U1279.prior");
Prior("Aarupgaard U1363_burial", "Aarupgaard_U1363.prior");
Prior("Aarupgaard U1382_burial", "Aarupgaard_U1382.prior");
Prior("Aarupgaard U1422_burial", "Aarupgaard_U1422.prior");
Prior("Aarupgaard U1436_burial", "Aarupgaard_U1436.prior");
Prior("Aarupgaard U1617_burial", "Aarupgaard_U1617.prior");
Prior("Aarupgaard U1654_burial", "Aarupgaard_U1654.prior");
Prior("Aarupgaard U1678_burial", "Aarupgaard_U1678.prior");
Prior("Aarupgaard U1791_burial", "Aarupgaard_U1791.prior");
Prior("Aarupgaard U1834_burial", "Aarupgaard_U1834.prior");
Prior("Aarupgaard U1847_burial", "Aarupgaard_U1847.prior");
Prior("Aarupgaard U1894_burial", "Aarupgaard_U1894.prior");
Prior("Aarupgaard U1970_burial", "Aarupgaard_U1970.prior");
Prior("Aarupgaard U1993_burial", "Aarupgaard_U1993.prior");
Prior("Aarupgaard U1997_burial", "Aarupgaard_U1997.prior");
Prior("Aarupgaard U2199_burial", "Aarupgaard_U2199.prior");
Prior("Aarupgaard U2262_burial", "Aarupgaard_U2262.prior");
Prior("Aarupgaard U2293_burial", "Aarupgaard_U2293.prior");
Prior("Aarupgaard U2354_burial", "Aarupgaard_U2354.prior");
Prior("Aarupgaard U2366_burial", "Aarupgaard_U2366.prior");
Prior("Aarupgaard U2455_burial", "Aarupgaard_U2455.prior");
Prior("Aarupgaard U2498_burial", "Aarupgaard_U2498.prior");
Prior("Aarupgaard U2541_burial", "Aarupgaard_U2541.prior");
Prior("Aarupgaard U2545_burial", "Aarupgaard_U2545.prior");
Prior("Aarupgaard U2550_burial", "Aarupgaard_U2550.prior");
Prior("Aarupgaard U2593_burial", "Aarupgaard_U2593.prior");
Prior("Aarupgaard U2710_burial", "Aarupgaard_U2710.prior");

```
Prior("Aarupgaard U3452_burial", "Aarupgaard_U3452.prior");
Prior("Aarupgaard U3778_burial", "Aarupgaard_U3778.prior");
Prior("Aarupgaard U3822_burial", "Aarupgaard_U3822.prior");
};
Phase("Søhale burials")
{
Prior("Søhale x18_burial", "Sohale_x18.prior");
Prior("Søhale x19_burial", "Sohale_x19.prior");
Prior("Søhale x23_burial", "Sohale_x23.prior");
Prior("Søhale x26_burial", "Sohale_x26.prior");
Prior("Søhale x28_burial", "Sohale_x28.prior");
Prior("Søhale x30_burial", "Sohale_x30.prior");
Prior("Søhale x31_burial", "Sohale_x31.prior");
Prior("Søhale x32_burial", "Sohale_x32.prior");
Prior("Søhale x34_burial", "Sohale_x34.prior");
Prior("Søhale x37_burial", "Sohale_x37.prior");
Prior("Søhale x38_burial", "Sohale_x38.prior");
Prior("Søhale x40_burial", "Sohale_x40.prior");
Prior("Søhale x41_burial", "Sohale_x41.prior");
Prior("Søhale x44_burial", "Sohale_x44.prior");
Prior("Søhale x47_burial", "Sohale_x47.prior");
Prior("Søhale x49_burial", "Sohale_x49.prior");
Prior("Søhale x50_burial", "Sohale_x50.prior");
Prior("Søhale x51_burial", "Sohale_x51.prior");
Prior("Søhale x52_burial", "Sohale_x52.prior");
Prior("Søhale x65_burial", "Sohale_x65.prior");
Prior("Søhale x69_burial", "Sohale_x69.prior");
Prior("Søhale x72_burial", "Sohale_x72.prior");
Prior("Søhale x74_burial", "Sohale_x74.prior");
Prior("Søhale x76_burial", "Sohale_x76.prior");
Prior("Søhale x92_burial", "Sohale_x92.prior");
Prior("Søhale x93_burial", "Sohale_x93.prior");
};
Phase("Aarre burials")
{
Prior("Aarre A86_burial", "Aarre_A86.prior");
Prior("Aarre A89_burial", "Aarre_A89.prior");
Prior("Aarre A99_burial", "Aarre_A99.prior");
Prior("Aarre A130_burial", "Aarre_A130.prior");
Prior("Aarre A155_burial", "Aarre_A155.prior");
Prior("Aarre A198_burial", "Aarre_A198.prior");
Prior("Aarre A278_burial", "Aarre_A278.prior");
Prior("Aarre A281_burial", "Aarre_A281.prior");
Prior("Aarre A393_burial", "Aarre_A393.prior");
Prior("Aarre A394_burial", "Aarre_A394.prior");
};
};
Sequence("pottery currencies")
{
After("Bronze Age Period VI")
{
```

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```
Date("=end BA per.VI");
};
Boundary("start pottery currencies");
Phase("pottery")
{
Phase("pottery type 11A")
{
Date("Aarupgaard U2710_11A", Prior("Aarupgaard U2710", "Aarupgaard_U2710.prior"));
};
Phase("pottery type 13A")
{
Date("Aarupgaard U1186_13A", Prior("Aarupgaard U1186", "Aarupgaard_U1186.prior"));
Date("Aarupgaard U1279_13A", Prior("Aarupgaard U1279", "Aarupgaard_U1279.prior"));
};
Phase("pottery type 11B")
{
Date("Aarupgaard U3822_11B", Prior("Aarupgaard U3822", "Aarupgaard_U3822.prior"));
};
Sequence("pottery type 12B")
{
Boundary("start type 12B");
Phase("pottery type 12B")
{
Date("Aarupgaard U81_12B", Prior("Aarupgaard_U81", "Aarupgaard_U81.prior"));
Date("Aarupgaard U83_12B", Prior("Aarupgaard_U83", "Aarupgaard_U83.prior"));
Date("Aarupgaard U183_12B", Prior("Aarupgaard_U183", "Aarupgaard_U183.prior"));
Date("Aarupgaard U230_12B", Prior("Aarupgaard_U230", "Aarupgaard_U230.prior"));
Date("Aarupgaard U500_12B", Prior("Aarupgaard_U500", "Aarupgaard_U500.prior"));
Date("Aarupgaard U752_12B", Prior("Aarupgaard_U752", "Aarupgaard_U752.prior"));
Date("Aarupgaard U1834_12B", Prior("Aarupgaard_U1834", "Aarupgaard_U1834.prior"));
Date("Aarupgaard U3778_12B", Prior("Aarupgaard_U3778", "Aarupgaard_U3778.prior"));
};
Span("duration type 12B");
Sum("type 12B (n=8)");
Boundary("end type 12B");
};
Sequence("pottery type 15B")
{
Boundary("increase type 15B")
{
End("start of increase type 15B");
Transition("period of increase type 15B");
Start("end of increase type 15B");
};
Phase("pottery type 15B")
{
Date("Aarupgaard U51_15B", Prior("Aarupgaard U51", "Aarupgaard_U51.prior"));
Date("Aarupgaard U1232_15B", Prior("Aarupgaard U1232", "Aarupgaard_U1232.prior"));
Date("Aarupgaard U3452_15B", Prior("Aarupgaard U3452", "Aarupgaard_U3452.prior"));
Date("Aarupgaard U280_15B", Prior("Aarupgaard U280", "Aarupgaard_U280.prior"));
Date("Aarupgaard U928_15B", Prior("Aarupgaard U928", "Aarupgaard_U928.prior"));
};
};
};
```

```
Date("Aarupgaard U766_15B", Prior("Aarupgaard U766", "Aarupgaard_U766.prior"));
Date("Aarupgaard U858_15B", Prior("Aarupgaard U858", "Aarupgaard_U858.prior"));
Date("Aarupgaard U1363_15B", Prior("Aarupgaard U1363", "Aarupgaard_U1363.prior"));
Date("Aarupgaard U1016_15B", Prior("Aarupgaard U1016", "Aarupgaard_U1016.prior"));
Date("Aarupgaard U1001_15B", Prior("Aarupgaard U1001", "Aarupgaard_U1001.prior"));
Date("Aarupgaard U1018_15B", Prior("Aarupgaard U1018", "Aarupgaard_U1018.prior"));
};
Span("duration type 15B");
Sum("type 15B (n=11)");
Boundary("decrease type 15B")
{
  Start("start of decrease type 15B");
  Transition("period of decrease type 15B");
  End("end of decrease type 15B");
};
};
Sequence("pottery type 20B")
{
  Boundary("start type 20B");
  Phase("pottery type 20B")
  {
    Date("Aarupgaard U34_20B", Prior("Aarupgaard U34", "Aarupgaard_U34.prior"));
    Date("Aarupgaard U36_20B", Prior("Aarupgaard U36", "Aarupgaard_U36.prior"));
    Date("Aarupgaard U293_20B", Prior("Aarupgaard U293", "Aarupgaard_U293.prior"));
    Date("Aarupgaard U123_20B", Prior("Aarupgaard U123", "Aarupgaard_U123.prior"));
    Date("Aarupgaard U2366_20B", Prior("Aarupgaard U2366", "Aarupgaard_U2366.prior"))-
N(50,25);
  };
  Span("duration type 20B");
  Sum("type 20B (n=5)");
  Boundary("end type 20B");
};
Phase("type 13C (n=1)")
{
  Date("Aarupgaard U797_13C", Prior("Aarupgaard U797", "Aarupgaard_U797.prior"));
};
Sequence("pottery type 15C")
{
  Boundary("start type 15C");
  Phase("pottery type 15C")
  {
    Date("Aarupgaard U1970_15C", Prior("Aarupgaard U1970", "Aarupgaard_U1970.prior"));
    Date("Aarupgaard U346_15C", Prior("Aarupgaard U346", "Aarupgaard_U346.prior"));
    Date("Aarupgaard U1678_15C", Prior("Aarupgaard U1678", "Aarupgaard_U1678.prior"));
    Date("Aarupgaard U1436_15C", Prior("Aarupgaard U1436", "Aarupgaard_U1436.prior"));
    Date("Aarupgaard U382_15C", Prior("Aarupgaard U382", "Aarupgaard_U382.prior"));
    Date("Aarupgaard U1791_15C", Prior("Aarupgaard U1791", "Aarupgaard_U1791.prior"));
    Date("Aarupgaard U1847_15C", Prior("Aarupgaard U1847", "Aarupgaard_U1847.prior"));
    Date("Aarupgaard U2354_15C", Prior("Aarupgaard U2354", "Aarupgaard_U2354.prior"));
  };
  Span("duration type 15C");
```

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```
Sum("type 15C (n=8)");
Boundary("end type 15C");
};
Sequence("pottery type 18C")
{
Boundary("start type 18C");
Phase("pottery type 18C")
{
Date("Aarupgaard U1997_18C", Prior("Aarupgaard U1997", "Aarupgaard_U1997.prior"));
Date("Aarupgaard U1382_18C", Prior("Aarupgaard U1382", "Aarupgaard_U1382.prior"));
Date("Aarupgaard U1617_18C", Prior("Aarupgaard U1617", "Aarupgaard_U1617.prior"));
Date("Aarupgaard U1076_18C", Prior("Aarupgaard U1076", "Aarupgaard_U1076.prior"));
Date("Aarupgaard U1001_18C", Prior("Aarupgaard U1001", "Aarupgaard_U1001.prior"));
};
Span("duration type 18C");
Sum("type 18C (n=5)");
Boundary("end type 18C");
};
Phase("type 11D (n=1)")
{
Date("Aarupgaard U2262_11D", Prior("Aarupgaard U2262", "Aarupgaard_U2262.prior"));
};
Phase("type 13D (n=2)")
{
Date("Aarupgaard U681_13D", Prior("Aarupgaard U681", "Aarupgaard_U681.prior"));
Date("Aarupgaard U1422_13D", Prior("Aarupgaard U1422", "Aarupgaard_U1422.prior"));
};
Sequence("pottery type 15D")
{
Boundary("start type 15D");
Phase("type 15D")
{
Date("Aarupgaard U2550_15D", Prior("Aarupgaard U2550", "Aarupgaard_U2550.prior"));
Date("Aarupgaard U867_15D", Prior("Aarupgaard U867", "Aarupgaard_U867.prior"));
Date("Aarupgaard U884_15D", Prior("Aarupgaard U884", "Aarupgaard_U884.prior"));
Date("Aarupgaard U2293_15D", Prior("Aarupgaard U2293", "Aarupgaard_U2293.prior"));
Date("Aarupgaard U2498_15D", Prior("Aarupgaard U2498", "Aarupgaard_U2498.prior"));
};
Span("duration type 15D");
Sum("type 15D (n=5)");
Boundary("end type 15D");
};
Phase("type 17D (n=1)")
{
Date("Aarupgaard U2593_17D", Prior("Aarupgaard U2593", "Aarupgaard_U2593.prior"));
};
Phase("type 20D (n=1)")
{
Date("Aarupgaard U2541_20D", Prior("Aarupgaard U2541", "Aarupgaard_U2541.prior"));
};
};
```

```
Boundary("end pottery currencies");
KDE_Plot("KDE_pottery", );
};
Sequence("metalwork currencies")
{
  After("Bronze Age Period VI")
  {
    Date("end BA per.VI", Prior("end BA per.VI", "end_BA_perVI.prior"));
  };
  Boundary("start metalwork currencies");
  Phase("metalwork currencies")
  {
    Sequence("pin w.type 1 coiled head")
    {
      Boundary("increase pin w.type 1 coiled head")
      {
        End("start of increase pin w.type 1 coiled head");
        Transition("period of increase pin w.type 1 coiled head");
        Start("end of increase pin w.type 1 coiled head");
      };
      Phase("pin w.type 1 coiled head")
      {
        Date("Aarupgaard U51_type 1", Prior("Aarupgaard U51", "Aarupgaard_U51.prior"));
        Date("Aarupgaard U1186_type 1", Prior("Aarupgaard U1186", "Aarupgaard_U1186.prior"));
        Date("Aarupgaard U1232_type 1", Prior("Aarupgaard U1232", "Aarupgaard_U1232.prior"));
        Date("Aarupgaard U3452_type 1", Prior("Aarupgaard U3452", "Aarupgaard_U3452.prior"));
        Date("Aarupgaard U3822_type 1", Prior("Aarupgaard U3822", "Aarupgaard_U3822.prior"));
        Date("Aarre A89_type 1", Prior("Aarre A89", "Aarre_A89.prior"));
        Date("Aarre A99_type1", Prior("Aarre A99", "Aarre_A99.prior"))-N(50,25);
        Date("Aarre A393_type 1", Prior("Aarre A393", "Aarre_A393.prior"));
        Date("Søhale x44_type 1", Prior("Søhale x44", "Sohale_x44.prior"));
        Date("Søhale x47_type 1", Prior("Søhale x47", "Sohale_x47.prior"));
        Date("Søhale x49_type 1", Prior("Søhale x49", "Sohale_x49.prior"));
        Date("Søhale x51_type 1", Prior("Søhale x51", "Sohale_x51.prior"));
        Date("Søhale x52_type 1", Prior("Søhale x52", "Sohale_x52.prior"));
        Date("Søhale x65_type 1", Prior("Søhale x65", "Sohale_x65.prior"))-N(50,25);
        Date("Søhale x74_type 1", Prior("Søhale x74", "Sohale_x74.prior"));
        Date("Søhale x76_type 1", Prior("Søhale x76", "Sohale_x76.prior"));
        Date("Søhale x92_type 1", Prior("Søhale x92", "Sohale_x92.prior"));
      };
      Span("duration pin w.type 1 coiled head");
      Sum("pin w.type 1 coiled head (n=17)");
      Boundary("decrease pin w.type 1 coiled head")
      {
        Start("start of decrease pin w.type 1 coiled head");
        Transition("period of decrease pin w.type 1 coiled head");
        End("end of decrease pin w.type 1 coiled head");
      };
    };
  };
  Sequence("pin w.type 2 coiled head")
  {
```

```
Boundary("increase pin w.type 2 coiled head")
{
  End("start of increase pin w.type 2 coiled head");
  Transition("period of increase pin w.type 2 coiled head");
  Start("end of increase pin w.type 2 coiled head");
};
Phase("pin w.type 2 coiled head")
{
  Date("Aarupgaard U34_type 2", Prior("Aarupgaard U34", "Aarupgaard_U34.prior"));
  Date("Aarupgaard U36_type 2", Prior("Aarupgaard U36", "Aarupgaard_U36.prior"));
  Date("Aarupgaard U81_type 2", Prior("Aarupgaard U81", "Aarupgaard_U81.prior"));
  Date("Aarupgaard U83_type 2", Prior("Aarupgaard U83", "Aarupgaard_U83.prior"));
  Date("Aarupgaard U280_type 2", Prior("Aarupgaard U280", "Aarupgaard_U280.prior"));
  Date("Aarupgaard U681_type 2", Prior("Aarupgaard U681", "Aarupgaard_U681.prior"));
  Date("Aarupgaard U928_type 2", Prior("Aarupgaard U928", "Aarupgaard_U928.prior"))
-N(50,25);
  Date("Aarupgaard U1279_type 2", Prior("Aarupgaard U1279", "Aarupgaard_U1279.prior"));
  Date("Aarupgaard U3778_type 2", Prior("Aarupgaard U3778", "Aarupgaard_U3778.prior"));
  Date("Aarre A86_type 2", Prior("Aarre A86", "Aarre_A86.prior"));
  Date("Aarre A198_type 2", Prior("Aarre A198", "Aarre_A198.prior"));
  Date("Aarre A278_type 2", Prior("Aarre A278", "Aarre_A278.prior"));
  Date("Aarre A394_type 2", Prior("Aarre A394", "Aarre_A394.prior"));
  Date("Søhale x44_type 2", Prior("Søhale x44", "Sohale_x44.prior"));
  Date("Søhale x50_type 2", Prior("Søhale x50", "Sohale_x50.prior"));
  Date("Søhale x72_type 2", Prior("Søhale x72", "Sohale_x72.prior"));
  Date("Søhale x74_type 2", Prior("Søhale x74", "Sohale_x74.prior"));
  Date("Søhale x76_type 2", Prior("Søhale x76", "Sohale_x76.prior"));
  Date("Søhale x93_type 2", Prior("Søhale x93", "Sohale_x93.prior"));
};
Span("duration pin w.type 2 coiled head");
Sum("pin w.type 2 coiled head (n=19)");
Boundary("decrease pin w.type 2 coiled head")
{
  Start("start of decrease pin w.type 2 coiled head");
  Transition("period of decrease pin w.type 2 coiled head");
  End("end of decrease pin w.type 2 coiled head");
};
Phase("bomb head pin")
{
  Date("Aarupgaard U2710", Prior("Aarupgaard U2710", "Aarupgaard_U2710.prior"));
};
Sequence("pin w.circular head")
{
  Boundary("increase pin w.circular head")
  {
    End("start of increase pin w.circular head");
    Transition("period of increase pin w.circular head");
    Start("end of increase pin w.circular head");
  };
  Phase("pin w.circular head")
```

```
{
  Date("Aarupgaard U123_circular", Prior("Aarupgaard U123", "Aarupgaard_U123.prior"));
  Date("Aarupgaard U183_circular", Prior("Aarupgaard U183", "Aarupgaard_U183.prior"))
-N(50,25);
  Date("Aarupgaard U230_circular", Prior("Aarupgaard U230", "Aarupgaard_U230.prior"));
  Date("Aarupgaard U293_circular", Prior("Aarupgaard U293", "Aarupgaard_U293.prior"));
  Date("Aarupgaard U500_circular", Prior("Aarupgaard U500", "Aarupgaard_U500.prior"));
  Date("Aarupgaard U752_circular", Prior("Aarupgaard U752", "Aarupgaard_U752.prior"));
  Date("Aarupgaard U766_circular", Prior("Aarupgaard U766", "Aarupgaard_U766.prior"));
  Date("Aarupgaard U797_circular", Prior("Aarupgaard U797", "Aarupgaard_U797.prior"));
  Date("Aarupgaard U928_circular", Prior("Aarupgaard U928", "Aarupgaard_U928.prior"));
  Date("Aarupgaard U1382_circular", Prior("Aarupgaard U1382", "Aarupgaard_U1382.prior"))-
N(50,25);
  Date("Aarupgaard U1617_circular", Prior("Aarupgaard U1617", "Aarupgaard_U1617.prior"))-
N(50,25);
  Date("Aarre A155_circular", Prior("Aarre A155", "Aarre_A155.prior"));
  Date("Aarre A281_circular", Prior("Aarre A281", "Aarre_A281.prior"));
  Date("Søhale x19_circular", Prior("Søhale x19", "Sohale_x19.prior"));
  Date("Søhale x23_circular", Prior("Søhale x23", "Sohale_x23.prior"));
  Date("Søhale x26_circular", Prior("Søhale x26", "Sohale_x26.prior"));
  Date("Søhale x31_circular", Prior("Søhale x31", "Sohale_x31.prior"));
  Date("Søhale x32_circular", Prior("Søhale x32", "Sohale_x32.prior"));
  Date("Søhale x34_circular", Prior("Søhale x34", "Sohale_x34.prior"));
  Date("Søhale x37_circular", Prior("Søhale x37", "Sohale_x37.prior"));
  Date("Søhale x40_circular", Prior("Søhale x40", "Sohale_x40.prior"));
  Date("Søhale x41_circular", Prior("Søhale x41", "Sohale_x41.prior"));
  Date("Søhale x69_circular", Prior("Søhale x69", "Sohale_x69.prior"));
};
Span("duration pin w.circular head");
Sum("pin w.circular head (n=23)");
Boundary("decrease pin w.circular head")
{
  Start("start of decrease pin w.circular head");
  Transition("period of decrease pin w.circular head");
  End("end of decrease pin w.circular head");
};
};
Sequence("simple iron ring")
{
  Boundary("start simple iron ring");
  Phase("simple iron ring")
  {
    Date("Aarupgaard U681_simple iron ring", Prior("Aarupgaard U681", "Aarupgaard_U681.prior"));
    Date("Aarupgaard U1186_simple iron ring", Prior("Aarupgaard U1186",
"Aarupgaard_U1186.prior"));
    Date("Aarupgaard U2366_simple iron ring", Prior("Aarupgaard U2366",
"Aarupgaard_U2366.prior"));
    Date("Aarupgaard U2455_simple iron ring", Prior("Aarupgaard U2455",
"Aarupgaard_U2455.prior"));
    Date("Aarupgaard U3778_simple iron ring", Prior("Aarupgaard U3778",
"Aarupgaard_U3778.prior"));
```

```
};
Span("duration simple iron ring");
Sum("simple iron ring (n=5)");
Boundary("end simple iron ring");
};
Phase("bronze neck ring")
{
  Date("Aarupgaard U1076_bronze neck ring", Prior("Aarupgaard U1076",
"Aarupgaard_U1076.prior"));
};
Phase("eye let ring")
{
  Date("Søhale x30_eyelet", Prior("Søhale x30", "Søhale_x30.prior"));
  Date("Søhale x65_eyelet", Prior("Søhale x65", "Søhale_x65.prior"));
};
Sequence("tongue-shaped belt clasp")
{
  Boundary("start tongue-shaped belt clasp");
  Phase("tongue-shaped belt clasp")
  {
    Date("Aarupgaard U183_tongue", Prior("Aarupgaard U183", "Aarupgaard_U183.prior"));
    Date("Aarupgaard U346_tongue", Prior("Aarupgaard U346", "Aarupgaard_U346.prior"));
    Date("Aarupgaard U1834_tongue", Prior("Aarupgaard U1834", "Aarupgaard_U1834.prior"));
    Date("Aarre A130_tongue", Prior("Aarre A130", "Aarre_A130.prior"));
    Date("Søhale x26_tongue", Prior("Søhale x26", "Søhale_x26.prior"));
    Date("Søhale x28_tongue", Prior("Søhale x28", "Søhale_x28.prior"));
  };
  Span("duration tongue-shaped belt clasp");
  Sum("tongue-shaped belt clasp (n=6)");
  Boundary("end tongue-shaped belt clasp");
};
Sequence("triangular belt clasp")
{
  Boundary("increase triangular belt clasp")
  {
    End("start of increase triangular belt clasp");
    Transition("period of increase triangular belt clasp");
    Start("end of increase triangular belt clasp");
  };
  Phase("triangular belt clasp")
  {
    Date("Aarupgaard U123_triangular", Prior("Aarupgaard U123", "Aarupgaard_U123.prior"));
    Date("Aarupgaard U427_triangular", Prior("Aarupgaard U427", "Aarupgaard_U427.prior"));
    Date("Aarupgaard U1001_triangular", Prior("Aarupgaard U1001", "Aarupgaard_U1001.prior"));
    Date("Aarupgaard U1363_triangular", Prior("Aarupgaard U1363", "Aarupgaard_U1363.prior"));
    Date("Aarupgaard U1382_triangular", Prior("Aarupgaard U1382", "Aarupgaard_U1382.prior"));
    Date("Aarupgaard U1617_triangular", Prior("Aarupgaard U1617", "Aarupgaard_U1617.prior"));
    Date("Aarupgaard U1791_triangular", Prior("Aarupgaard U1791", "Aarupgaard_U1791.prior"));
    Date("Aarupgaard U1847_triangular", Prior("Aarupgaard U1847", "Aarupgaard_U1847.prior"));
    Date("Aarupgaard U1997_triangular", Prior("Aarupgaard U1997", "Aarupgaard_U1997.prior"));
    Date("Søhale x30_triangular", Prior("Søhale x30", "Søhale_x30.prior"));
  };
};
```

```
};  
Span("duration triangular belt clasp");  
Sum("triangular belt clasp (n=10)");  
Boundary("decrease triangular belt clasp")  
{  
  End("start of decrease triangular belt clasp");  
  Transition("period of decrease triangular belt clasp");  
  Start("end of decrease triangular belt clasp");  
};  
};  
Sequence("iron ring w.shank")  
{  
  Boundary("increase iron ring w.shank")  
  {  
    End("start of increase iron ring w.shank");  
    Transition("period of increase iron ring w.shank");  
    Start("end of increase iron ring w.shank");  
  };  
  Phase("iron ring w.shank")  
  {  
    Date("Aarupgaard U871_iron ring w.shank", Prior("Aarupgaard U871",  
"Aarupgaard_U871.prior"))  
    {  
    };  
    Date("Aarupgaard U1001_iron ring w.shank", Prior("Aarupgaard U1001",  
"Aarupgaard_U1001.prior"));  
    Date("Aarupgaard U1016_iron ring w.shank", Prior("Aarupgaard U1016",  
"Aarupgaard_U1016.prior"));  
    Date("Aarupgaard U1018_iron ring w.shank", Prior("Aarupgaard U1018",  
"Aarupgaard_U1018.prior"));  
    Date("Aarupgaard U1654_iron ring w.shank", Prior("Aarupgaard U1654",  
"Aarupgaard_U1654.prior"));  
    Date("Aarupgaard U1894_iron ring w.shank", Prior("Aarupgaard U1894",  
"Aarupgaard_U1894.prior"));  
    Date("Aarupgaard U1993_iron ring w.shank", Prior("Aarupgaard U1993",  
"Aarupgaard_U1993.prior"));  
    Date("Aarupgaard U2293_iron ring w.shank", Prior("Aarupgaard U2293",  
"Aarupgaard_U2293.prior"));  
    Date("Aarupgaard U2354_iron ring w.shank", Prior("Aarupgaard U2354",  
"Aarupgaard_U2354.prior"));  
    Date("Aarupgaard U2541_iron ring w.shank", Prior("Aarupgaard U2541",  
"Aarupgaard_U2541.prior"));  
    Date("Aarupgaard U2550_iron ring w.shank", Prior("Aarupgaard U2550",  
"Aarupgaard_U2550.prior"));  
    Date("Aarupgaard U2593_iron ring w.shank", Prior("Aarupgaard U2593",  
"Aarupgaard_U2593.prior"))  
    {  
    };  
  };  
  };  
  Span("duration iron ring w.shank");  
  Sum("iron ring w.shank (n=12)");
```

```
Boundary("decrease iron ring w.shank")
{
  Start("start of decrease iron ring w.shank");
  Transition("period of decrease iron ring w.shank");
  End("end of decrease iron ring w.shank");
};
};
Sequence("narrow belt clasp")
{
  Boundary("increase narrow belt clasp")
  {
    End("start of increase narrow belt clasp");
    Transition("period of increase narrow belt clasp");
    Start("end of increase narrow belt clasp");
  };
  Phase("narrow belt clasp")
  {
    Date("Aarupgaard U382_narrow", Prior("Aarupgaard U382", "Aarupgaard_U382.prior"));
    Date("Aarupgaard U858_narrow", Prior("Aarupgaard U858", "Aarupgaard_U858.prior"));
    Date("Aarupgaard U1076_narrow", Prior("Aarupgaard U1076", "Aarupgaard_U1076.prior"));
    Date("Aarupgaard U1422_narrow", Prior("Aarupgaard U1422", "Aarupgaard_U1422.prior"));
    Date("Aarupgaard U1436_narrow", Prior("Aarupgaard U1436", "Aarupgaard_U1436.prior"));
    Date("Aarupgaard U1678_narrow", Prior("Aarupgaard U1678", "Aarupgaard_U1678.prior"));
    Date("Aarupgaard U1970_narrow", Prior("Aarupgaard U1970", "Aarupgaard_U1970.prior"));
    Date("Aarupgaard U2262_narrow", Prior("Aarupgaard U2262", "Aarupgaard_U2262.prior"));
    Date("Søhale x18_narrow", Prior("Søhale x18", "Sohale_x18.prior"));
    Date("Søhale x38_narrow", Prior("Søhale x38", "Sohale_x38.prior"));
    Date("Søhale x41_narrow", Prior("Søhale x41", "Sohale_x41.prior"));
  };
  Span("duration narrow belt clasp");
  Sum("narrow belt clasp (n=11)");
  Boundary("decrease narrow belt clasp")
  {
    End("start of decrease narrow belt clasp");
    Transition("period of decrease narrow belt clasp");
    Start("end of decrease narrow belt clasp");
  };
};
Sequence("pin w.rod-shaped head")
{
  Boundary("start pin w.rod-shaped head");
  Phase("pin w.rod-shaped head")
  {
    Date("Aarupgaard U858_rod-shaped head", Prior("Aarupgaard U858",
"Aarupgaard_U858.prior"));
    Date("Aarupgaard U871_rod-shaped head", Prior("Aarupgaard U871",
"Aarupgaard_U871.prior"));
    Date("Aarupgaard U1894_rod-shaped head", Prior("Aarupgaard U1894",
"Aarupgaard_U1894.prior"));
    Date("Aarupgaard U2293_rod-shaped head", Prior("Aarupgaard U2293",
"Aarupgaard_U2293.prior"));
  };
};
```

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```
Date("Aarupgaard U2354_rod-shaped head", Prior("Aarupgaard U2354",
"Aarupgaard_U2354.prior"));
Date("Aarupgaard U2366_rod-shaped head", Prior("Aarupgaard U2366",
"Aarupgaard_U2366.prior"));
Date("Aarupgaard U2455_rod-shaped head", Prior("Aarupgaard U2455",
"Aarupgaard_U2455.prior"));
Date("Aarupgaard U2545_rod-shaped head", Prior("Aarupgaard U2545",
"Aarupgaard_U2545.prior"));
};
Span("duration pin w.rod-shaped head");
Sum("pin w.rod-shaped head(n=8)");
Boundary("end pin w.rod-shaped head");
};
Sequence("pin w.grooved head")
{
Boundary("start pin w.grooved head");
Phase("pin w.grooved head")
{
Date("Aarupgaard U1422_grooved head", Prior("Aarupgaard U1422",
"Aarupgaard_U1422.prior"));
Date("Aarupgaard U1617_grooved head", Prior("Aarupgaard U1617",
"Aarupgaard_U1617.prior"));
Date("Aarupgaard U1654_grooved head", Prior("Aarupgaard U1654",
"Aarupgaard_U1654.prior"));
Date("Aarupgaard U1970_grooved head", Prior("Aarupgaard U1970",
"Aarupgaard_U1970.prior"));
Date("Aarupgaard U1993_grooved head", Prior("Aarupgaard U1993",
"Aarupgaard_U1993.prior"));
Date("Aarupgaard U1997_grooved head", Prior("Aarupgaard U1997",
"Aarupgaard_U1997.prior"));
};
Span("duration pin w.grooved head");
Sum("pin w.grooved head(n=6)");
Boundary("end pin w.grooved head");
};
Sequence("Holstein pin")
{
Boundary("start Holstein pin");
Phase("Holstein pin")
{
Date("Aarupgaard U427_Holstein", Prior("Aarupgaard U427", "Aarupgaard_U427.prior"));
Date("Aarupgaard U2199_Holstein", Prior("Aarupgaard U2199", "Aarupgaard_U2199.prior"));
Date("Aarupgaard U2541_Holstein", Prior("Aarupgaard U2541", "Aarupgaard_U2541.prior"));
Date("Aarupgaard U2593_Holstein", Prior("Aarupgaard U2593", "Aarupgaard_U2593.prior"));
};
Span("duration Holstein pin");
Sum("Holstein pin (n=4)");
Boundary("end Holstein pin");
};
Sequence("winged head pin")
{
```

```
Boundary("start winged head pin");
Phase("winged head pin")
{
  Date("Aarupgaard U867_winged", Prior("Aarupgaard U867", "Aarupgaard_U867.prior"));
  Date("Aarupgaard U884_winged", Prior("Aarupgaard U884", "Aarupgaard_U884.prior"));
  Date("Aarupgaard U1018_winged", Prior("Aarupgaard U1018", "Aarupgaard_U1018.prior"));
  Date("Aarupgaard U2498_winged", Prior("Aarupgaard U2498", "Aarupgaard_U2498.prior"));
};
Span("duration winged head pin");
Sum("winged head pin(n=4)");
Boundary("end winged head pin");
};
};
Boundary("end metalwork currencies");
KDE_Plot("KDE_metalwork", );
};
Phase("order of introduction")
{
  Sequence()
  {
    Date("=end of increase pin w.type 1 coiled head");
    Date("=end of increase pin w.type 2 coiled head");
    Date("=end of increase pin w.circular head");
    Phase()
    {
      Date("=start pin w.grooved head");
      Date("=start pin w.rod-shaped head");
    };
    Phase()
    {
      Date("=start Holstein pin");
      Date("=start winged head pin");
    };
  };
  Sequence()
  {
    Date("=start simple iron ring");
    Phase()
    {
      Date("=start tongue-shaped belt clasp");
      Date("=end of increase triangular belt clasp");
    };
    Phase()
    {
      Date("=end of increase iron ring w.shank");
      Date("=end of increase narrow belt clasp");
    };
  };
};
};
Order("introduction of pottery")
{
```

```
Date("=start type 12B");
Date("=end of increase type 15B");
Date("=start type 20B");
Date("=start type 15C");
Date("=start type 18C");
Date("=start type 15D");
};
Phase("residence time")
{
  Difference ("residence time_Aarre A99", "Aarre A99_burial", "Aarre A99_type1");
  Difference ("residence time_Søhale x65", "Søhale x65_burial", "Søhale x65_type 1");
  Difference ("residence time_Aarupgaard U928", "Aarupgaard U928_burial", "Aarupgaard
U928_type 2");
  Difference ("residence time_Aarupgaard U183", "Aarupgaard U183_burial", "Aarupgaard
U183_circular");
  Difference ("residence time_Aarupgaard U1382", "Aarupgaard U1382_burial", "Aarupgaard
U1382_circular");
  Difference ("residence time_Aarupgaard U1617", "Aarupgaard U1617_burial", "Aarupgaard
U1617_circular");
  Difference ("residence time_Aarupgaard U2366", "Aarupgaard U2366_burial", "Aarupgaard
U2366_20B");
};
};
```

References

1. Bronk Ramsey C. Bayesian Analysis of Radiocarbon Dates. *Radiocarbon*. 2009; 51(1): 337-60. <https://doi.org/10.1017/S0033822200033865>